

U. S. CIRCUIT COURT.  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COMPANY	)	
AND THE UNITED STATES GRAMOPHONE	)	In Equity No. 8797
COMPANY, Complainants	)	
	)	on patent 534543
Versus	)	
	)	
LEEDS AND CATLIN COMPANY,	)	
Defendant	)	

VICTOR TALKING MACHINE COMPANY	)	
AND THE UNITED STATES GRAMOPHONE	)	In Equity No. 8859
COMPANY, Complainants	)	
	)	on patent 534543
Versus	)	
	)	
THE TALK O PHONE COMPANY,	)	
Defendant	)	

RECORD

Note: Cases joined pages 47 - 49 different

Affidavit of Thomae appears only in Talk-o-phone  
case.

Copied from Appeal record  
at Federal Record Center,  
New York City. Exhibits  
not copied.

Copy of Franklin Institute Article from another reprint.

Talk-o-phone  
8854

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Circuit Court of the United States.

SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. 8352, 8797.

Suit on Berliner Gramophone Patent No. 534543.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants,

VS.  
*Leech & Catlin*  
~~THE TALKING PHONE~~ COMPANY,  
Defendant.

To the Honorable Judges of the Circuit Court for  
the United States for the Southern District of  
New York:

The Victor Talking Machine Company, a corpo-  
ration duly organized and existing under the laws  
of the State of New Jersey, having its principal  
office in the City of Camden, State of New Jersey,  
and the United States Gramophone Company, a  
corporation duly organized and existing under and  
by virtue of the laws of the State of West Virginia,  
having its principal office in Harper's Ferry, State  
of West Virginia, bring this, their bill of complaint,  
against the ~~Talking Phone~~ Company, a corpora-  
*Leech & Catlin*



tion organized and existing under the laws of the State of ~~Ohio~~ <sup>New York</sup> and having ~~its principal and principal~~ <sup>its principal and principal</sup> place of business ~~in the City of~~ <sup>in the City of</sup> New York, ~~County of Mar-~~ <sup>County of Mar-</sup> ~~hattan~~ <sup>hattan</sup>, State of New York, and within the Southern District of New York.

And thereupon your orators complain and say:

1. That Emile Berliner, of the City of Washington, District of Columbia, was the original, first and sole inventor of certain new and useful improvements in gramophones, being improvements relating to recording and reproducing speech and other sounds, which improvements were not known or used by others in this country before his invention thereof, and were not patented or described in any printed publication in this or any foreign country before his invention thereof, and was not in public use or on sale in the United States for more than two years prior to his application for a patent therefor, and which had not been abandoned.

2. Your orators further show unto your Honors that the said Emile Berliner, being as aforesaid the first inventor and discoverer of the said new and useful improvements in gramophones or improvements relating to recording and reproducing speech and other sounds, did, on the thirteenth day of March, 1892, duly make application to the Honorable Commissioner of Patents at Washington, D. C., for letters patent of the United States for the said invention, and on the said date filed his said application with the said Honorable Commissioner of Patents in due and proper form, and thereafter duly and fully prosecuted said application.

3. Your orators further show that the said Emile Berliner being then the sole and exclusive owner of the said invention, and of all letters patent of the United States to be issued therefor, did during the pendency of the said application, by instrument



in writing duly executed the twenty-ninth day of January, 1895, and recorded at the Patent Office at Washington, D. C., in Liber C 51, page 185, etc., of Transfers of Patents, assign, sell and set over unto your orator, the United States Gramophone Company, the exclusive and entire right, title and interest in and to the said invention, and in and to all letters patent to be issued therefor, and all rights of the said Berliner therein and thereunder whatsoever, as by reference to the said instrument, or a duly authenticated copy thereof, in Court to be produced, will more fully and at large appear.

4. Your orators further show that upon the said application of the said Emile Berliner, letters patent of the United States were issued in the name of the said Emile Berliner to your orator, the United States Gramophone Company, as assignee, in due form of law, in the name of the United States of America, under the seal of the Patent Office of the United States, signed by the Secretary of Interior, and countersigned by the Commissioner of Patents of the United States, and duly delivered, bearing date the nineteenth day of February, 1895, and numbered 534543, whereby there was granted and secured to your orator, the United States Gramophone Company, its successors and assigns, for the term of seventeen years from the date of said letters patent, and within the United States and its Territories, the full and exclusive right and liberty of making, constructing, using and vending the said invention and improvements, as set forth in the said letters patent, a duly certified copy of which is ready here in Court to be produced, and by virtue whereof, and of the said assignment, your said orator, the United States Gramophone Company, became the sole owner of all rights and privileges, granted and secured, by the said letters patent, and of all rights of the said Emile Berliner in the prem-



#### Bill of Complaint.

ises, a copy of said Letters Patent No. 534543 being hereto annexed and marked Exhibit A.

5. Your orators further show unto your Honors that by agreement dated the second day of September, A. D. 1895, and recorded in the United States Patent Office in Liber S 52, page 207, etc., your orator, the United States Gramophone Company, as licensor, made and entered into an agreement with William C. Jones, of the City of New York, State of New York, as licensee, subject to the conditions therein contained, by which said Jones acquired as licensee the sole and exclusive right to manufacture, sell, lease and deal in, in the United States, the said invention hereinbefore referred to, patented by Letters Patent No. 534543, dated February 19, 1895, together with other inventions and letters patent issued to the said Emile Berliner, assignor to said United States Gramophone Company, relating to sound recording and reproducing with the right to assign the same to others. That by agreement also dated the second day of September, A. D. 1895, between the said Emile Berliner and the said William C. Jones, and recorded in the Patent Office of the United States in Liber S 52, page 214, etc., the said agreement above noted was *inter alia* confirmed by the said Emile Berliner unto the said William C. Jones.

That by agreement dated the fourth day of October, A. D. 1895, between the said United States Gramophone Company and the said William C. Jones, recorded in the said Patent Office at Washington, D. C., in Liber S 52, page 216, etc., the said agreement of September 2, 1895, between the same parties was modified, in matters relative to the payment of royalty.

6. And your orators further show unto your Honors that by declaration of trust dated the fifteenth day of October, A. D. 1895, recorded in the Patent



Office at Washington, D. C., in Liber S 52, page 219, etc., and by agreement dated the first day of November, A. D. 1895, recorded in the said Patent Office at Washington, D. C., in Liber P 52, page 326, etc., the said William C. Jones transferred and assigned to the Berliner Gramophone Company, a corporation duly organized and existing under the laws of the State of Virginia, having its principal office in the City of Roanoke, State of Virginia, its successors and assigns, his entire right, title and interest as sole and exclusive licensee in and to the said Letters Patent No. 534543, and in and to the said invention therein described and claimed, and in and to the aforesaid agreements, and in and to all inventions, letters patent and rights therein and thereunder.

7. And your orators further show, that by agreement dated the twenty-eighth day of September, 1901, the said Berliner Gramophone Company, being then the sole owner of the said exclusive license to manufacture, sell, lease and deal in the said invention and inventions, did grant and convey, assign and set over unto Eldridge R. Johnson, of the City of Philadelphia, State of Pennsylvania, the said exclusive license, and all its rights therein and thereunder, to manufacture, sell, use and deal in the said invention and inventions, with the right to the said Johnson to assign the same unto your orator, the Victor Talking Machine Company.

8. Your orators further show unto your Honors that by agreement dated the fifth day of October, 1901, the said Eldridge R. Johnson, being then the sole owner of the said exclusive license to manufacture, sell and deal in the said invention and inventions, did grant and convey, assign and set over unto your orator, the Victor Talking Machine Company, a corporation organized and existing under the laws of the State of New Jersey, the said exclu-



sive license and all his rights therein and thereunder to manufacture, sell and use and deal in the said invention and inventions, and all his rights and remedies for infringement of the said patent occurring during the period of the ownership by said Eldridge R. Johnson, of said exclusive license and rights.

9. And your orators further show unto your Honors that by virtue of the premises your orator, the United States Gramophone Company, is now, and has been at all times since the date of the said assignment to it, the sole and exclusive owner of the said Letters Patent No. 534543, and that your orator, the Victor Talking Machine Company, is now, and has been at all times since the date of the said agreement with it, and the said transfers and assignments of the said rights to it, the sole and exclusive licensee as aforesaid, under the said Letters Patent No. 534543, for the manufacture and sale of said invention patented in said letters patent, throughout the United States. Your orators show unto your Honors that they are now the sole and exclusive owners of the legal and equitable title in and to the said Letters Patent No. 534543, and in and to the improvements therein contained and of all rights of action thereto pertaining, as will more fully and at large appear by reference to the said agreements and assignments, all of which will in Court be produced.

10. And your orators further show unto your Honors that they have expended large sums of money in practicing said invention and improvements patented in the said Letters Patent No. 534543, and in introducing the same into public use, and the same are of great commercial value and practical utility; that a great public interest has been manifested therein, and a large demand created for apparatus constructed in accordance with



### Bill of Complaint.

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or embodying the same, which demand your orators are ready and able to supply; that the public generally, in all parts of the United States have recognized and acquiesced in the facts that the said Emile Berliner was the first and original inventor of the said invention, and that the Patent No. 534543 is good and valid, that the public have also acknowledged the claims of your orators to the exclusive rights of the said invention under said patent; and that but for the infringements and wrongs hereinafter complained of and of a few recent infringements encouraged by the unlawful acts of this defendant, your orators would be now in peaceful possession and enjoyment of the said letters patent and invention, and of the income derivable therefrom; and that your orators and their predecessors in title have never acquiesced in any infringements of their rights in the premises at any time.

11. Yet, as your orators are informed and believe and further show unto your Honors, that the said <sup>Lynde & Collier</sup> ~~Park-Bell~~ Company the said defendant herein named, well knowing all the facts herein set forth, but contriving to injure your orators and deprive them and each of them, of the benefits and advantages which might and otherwise would accrue to them, and each of them, from said patented devices, methods and things, have made, sold and used, and are now making and selling and using apparatus and things relative to sound recording or reproducing, having and containing the devices and things patented in said Letters Patent No. 534543, particularly in claims numbered 5, 32, 35, and employing methods covered by the said Letters Patent, or in all substantial respects the same, the exclusive right to make, use and vend which to others to use is legally vested in your orators.



12. And your orators further show unto your Honors that notwithstanding the fact that the said defendant has been duly notified by your orators of your orators' rights in the premises, and of the fact that the said defendant was infringing the said Letters Patent of your orators, and that the said defendant should desist from such infringements, the said defendant has continued, and is still continuing, to the great and irreparable damage and injury of your orators, the manufacture, sale and use of the said infringing devices and things.

13. And your orators further show that they have given notice to the public that the said invention is patented and have affixed, or caused to be affixed, to all apparatus and devices manufactured and sold under the authority of your orators the word "Patented," together with the day and year of the grant of the said patent, of which notice the said defendant has had full knowledge.

14. And so it is, may it please your Honors, that the said defendant, as your orators are informed and believe, without the license of your orators, or any of them, and without any license whatsoever, against the will of your orators, and in violation of their rights, has made and sold, and intends to continue to make and sell, within the Southern District of New York, and elsewhere within the United States, said patented devices and things, each having and containing the said patented features, substantially the same in all material respects in construction, operation and effect as in your orators' said letters patent mentioned, and employing methods covered by said letters patent; and that the said defendant is largely advertising said infringements, to the great damage and injury of your orators, and



that the said defendant refuses to pay unto your orators any of the profits which said defendant has made by such unlawful manufacture and sale or to desist from the further infringement of the said letters patent, though requested so to do, all of which acts and doings are in violation of the exclusive rights and privileges so, as aforesaid, vested in your orators under and by virtue of the said letters patent, are contrary to equity and good conscience, tend to the manifest injury of your orators in the premises, and will, (if said defendant is allowed to continue said infringements, irreparably damage and injure your orators, and each of them, depreciate or destroy the value of the exclusive franchises to which your orators are entitled under the patent aforesaid, and will deprive your orators of the benefits and advantages for the loss of which there exists no adequate legal remedy.

And your orators, therefore, pray as follows:

I. That the said defendant be required by decree of this Honorable Court to account for and pay over to your orators such gains and profits as have accrued or arisen, or been earned or received by the said defendant, and all such gains and profits as would have accrued to your orators, but for the unlawful doing of said defendant and all damages your orators have sustained thereby.

II. That the said defendant may be compelled, by the order of this Honorable Court, to deliver up to the judicial custody for destruction, in manner to be provided for in said order, all infringing apparatus and sound records, in the possession of or under the control of said defendant.

III. That the defendant, its associates, attorneys, servants, clerks, agents and workmen may be perpetually enjoined and restrained, by a writ of in-



junction issuing out of and under the seal of this Honorable Court, from directly or indirectly making or causing to be made, using or causing to be used, selling or causing to be sold, any machine or apparatus or sound record, embodying or constructed or operated in accordance with the invention or improvements set forth in the letters patent aforesaid.

IV. That your Honors will grant unto your orators a preliminary injunction, issuing out of and under the seal of this Honorable Court, enjoining and restraining the said defendant, its associates, servants, clerks, agents and workmen, to the same purport, tenor and effect as hereinbefore prayed for with regard to said perpetual injunction; and

V. That the defendant be decreed to pay the costs of this suit; and

VI. That your orators may have such other and further relief as the equity of the case may require.

To the end therefore, that the defendant may, if it can, show why your orators should not have the relief prayed for, and may full, true and direct answer make, but not under oath (answer under oath being expressly waived), according to the best and utmost of its knowledge, information, remembrance and belief, to the several matters hereinbefore averred and set forth, as fully and particularly as if the same were repeated paragraph by paragraph, and said defendant thereto severally and specifically interrogated, may it please your Honors to grant your orators a writ of *subpoena ad respondendum* issuing out of and under the seal of this Honorable Court, directed to said defendant, the ~~Talk~~ <sup>Herde & Catlin</sup> Phone Company, commanding it to appear and make answer to this bill of complaint, and



Bill of Complaint.

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to perform and abide by such order and decree as  
to this Court may seem just.

And your orators will ever pray.

HORACE PETTIT,

Of Counsel for Complainants,

~~604 Stephen Girard Bldg.,~~

~~Philadelphia, Pa.~~

*July 11<sup>th</sup>*  
~~September 24~~, 1904.

Stimson and Williams,  
Solicitors for Complainant,  
55 Liberty Street,  
New York City.

State of Pennsylvania, }  
City and County of Philadelphia, } ss.:

Eldridge R. Johnson, being duly sworn, deposes  
and says that he is the President of the Victor Talk-  
ing Machine Company, one of the complainants  
named in the foregoing bill; that he has read the  
same and knows the contents thereof, and that the  
same is true of his own knowledge, save of the mat-  
ters therein stated to be alleged upon information  
and belief, and that as to those matters he believes  
it to be true.

ELDRIDGE R. JOHNSON.

Sworn to and subscribed before me this }

*11<sup>th</sup>* ~~20<sup>th</sup>~~ day of ~~September~~, A. D. 1904. }

John ~~F. Brady~~, *B. Ruthenford*,

[SEAL]

Notary Public,

*My* Commission expires ~~Jan 19, 1907~~, *Feb. 27, 1905*

~~Stephen Girard Building.~~

[Bill of complaint filed ~~October 1~~, 1904.]

*July 12,*



## CIRCUIT COURT OF THE UNITED STATES

SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants,

vs.

*Leeds & Catlin*  
~~THE TALKING MACHINE~~ COMPANY,  
Defendant.

In Equity.  
No. 8899-8597.  
Patent No. 534543.

The answer of the defendant above-named to the  
bill of complaint of the complainants above-named.

To the Honorable, the Judges of the Circuit Court  
of the United States for the Southern District  
of New York:

This defendant, now and at all times hereafter  
saving and reserving to itself all benefit and advan-  
tage of exception which can or may be had to the  
errors, uncertainties and insufficiencies in said com-  
plainants' bill of complaint, for answer thereunto  
says:

First. Defendant has no knowledge or informa-  
tion sufficient to form a belief as to whether the  
Victor Talking Machine Company ever was or is  
a corporation organized or existing under the Laws  
of the State of New Jersey, or having an office in  
the City of Camden, State of New Jersey; or  
whether the United States Gramophone Company  
ever was or is a corporation organized or existing  
under or by virtue of the Laws of the State of West  
Virginia, or having an office in Harper's Ferry,  
State of West Virginia, and leaves complainants to  
make such proof thereof as they may be advised is



material or necessary. Defendant admits that it is now and was at the time of the filing of the bill of complaint herein a corporation organized and existing under the Laws of the State of <sup>New York</sup> ~~Ohio~~ and having <sup>its office and principal</sup> ~~a regular and established~~ place of business in the City of New York, State of New York, within the Southern District of New York.

Second. Upon information and belief, defendant denies that Emile Berliner was the original or first or sole inventor of the alleged improvements in gramophones, or improvements relating to recording and reproducing speech and other sounds mentioned in said bill; and denies that said alleged improvements were new or useful when, as alleged in said bill, they were invented by said Emile Berliner; and denies that said alleged improvements were not known and were not used by others in this country before the alleged invention thereof by said Emil Berliner; and denies that said alleged improvements were not patented and were not described in any printed publication in this or any foreign country before his alleged invention thereof; and denies that said alleged improvements were not in public use and were not on sale within the United States for more than two years prior to his application in the United States for a patent therefor; and denies that said alleged improvements had not been abandoned at the time mentioned in said bill.

Third. Defendant denies that the said Emile Berliner was the first inventor or discoverer of the said alleged new and useful improvements in gramophones, or improvements relating to recording and reproducing speech and other sounds; and denies that it has any knowledge or information sufficient to form a belief as to whether said Berliner made application for letter patent of the United States for said invention to the Commissioner of Patents or otherwise, on March 13, 1892, or at any other



time, or whether said Berliner ever filed such an application with the Commissioner of Patents or ever prosecuted such an application, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Fourth. Defendant denies that said Berliner ever was the sole or exclusive owner of the said alleged invention or ever owner or was entitled to any letters patent of the United States to be issued therefor, and denies that it has any knowledge or information sufficient to form a belief as to whether, during the pendency of said application or at any time, by instrument in writing or otherwise executed January 29, 1895, or at any other time, the said Berliner sold, assigned, transferred or set over unto the United States Gramophone Company, the exclusive or entire or any right, title or interest in or to the said alleged invention, or in or to the letters patent to be issued therefor, or all or any rights of the said Berliner therein or thereunder, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Fifth. Defendant admits that Letters Patent of the United States Numbered 534543 and bearing date February 19, 1895, were issued in the name of Emile Berliner, but defendant denies that it has any knowledge or information sufficient to form a belief as to whether the said letters patent were issued upon the application of the said Berliner, or whether the United States Gramophone Company was the assignee of the entire or any right, title or interest therein or thereunder, or whether the said letters patent were issued in due form of law, or in the name of the United States of America, or under the seal of the Patent Office of the United States, or were signed by the Secretary of the Interior, or countersigned by the Commissioner of Patents of the United States, or were ever delivered



and leaves complainants to make such proof thereof as they may be advised is material or necessary; and defendant denies that by said letters patent there was granted or secured to the United States Gramophone Company or to its successors or assigns for the term of seventeen years, or for any term, within the United States and its territories or any part thereof, the full or exclusive or any right or liberty of making, constructing, using or vending the said alleged invention or improvements, and defendant denies that it has any knowledge or information sufficient to form a belief as to whether the United States Gramophone Company by virtue thereof, or by virtue of the said alleged assignment or otherwise ever become the owner, sole or other, of all or any rights or privileges alleged to have been granted and secured by the said letters patent, or of all or any rights of the said Emile Berliner in the premises, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Sixth. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether by agreement dated September 2, 1895, or otherwise the United States Gramophone Company as licensor or otherwise made or entered into an agreement with William C. Jones as licensee or otherwise; or whether the said alleged agreement was subject to conditions therein contained; or whether by virtue of said agreement said Jones acquired as licensee or otherwise the sole or exclusive or any right to manufacture, sell, lease or deal in in the United States or in any part thereof the said alleged invention hereinbefore referred to and alleged to have been patented by Letters Patent No. 534543, dated February 19, 1895, or whether the said alleged invention formed any part of the subject matter of the said alleged agreement or



was within the meaning of the said agreement, or whether the said Jones acquired by virtue of the said alleged agreement any right to assign to others any right acquired by him under the said alleged agreement; or whether by agreement also dated September 2, 1895, or otherwise between said Berliner and said Jones, the said agreement, above noted was confirmed by the said Berliner unto the said Jones, or whether by agreement dated October 4, 1895, or otherwise between the United States Gramophone Company and the said Jones the said agreement or either of the said agreements dated September 2, 1895, was modified in matters relative to the payment of royalties or otherwise, and defendant leaves complainant to make such proof thereof as they may be advised is material or necessary.

Seventh. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether, by a declaration of trust, dated October 15, 1895, or otherwise, said Jones transferred or assigned to the Berliner Gramophone Company or to its successors or assigns, all or any of his right, title or interest as exclusive or sole licensee or otherwise in or to the said alleged invention described and claimed in said Letters Patent No. 534543, or in or to the said Letters Patent No. 534543, or in or to the aforesaid agreements and assignments or any of them, or in or to all or any inventions, letters patent or rights therein or thereunder, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Eighth. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether by agreement dated September 28, 1901, or otherwise the said Berliner Gramophone Company, did at any time grant or convey, assign or set over unto Eldridge R. Johnson the said exclu-



sive or any license or all or any of its rights therein or thereunder, to manufacture, sell, use or deal in the said alleged invention or inventions; or whether said Berliner Gramophone Company so did with the right to said Johnson to assign the same unto the Victor Talking Machine Company, or whether said Berliner Gramophone Company was then or at any time the owner, sole or other, of said alleged exclusive license to manufacture, sell, lease or deal in said alleged invention and inventions, or any of them, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Ninth. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether said Eldridge R. Johnston ever was the owner, sole or other, of the said alleged license, exclusive or other, to manufacture, sell or deal in the said alleged invention or inventions or any of them, or as to whether said Johnson, by agreement dated October 5, 1901 or otherwise, ever did grant or convey, assign or set over unto the Victor Talking Machine Company the said alleged license, exclusive or other, or all or any of his rights therein or thereunder to manufacture, sell or use or deal in said alleged invention or inventions or any of them, or all or any of his rights and remedies for infringement of the said patent occurring during the alleged period of ownership of said Johnson of said license or rights, exclusive or other, or occurring during any period, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Tenth. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether the United States Gramophone Company is now or ever was the owner, sole or exclusive or other of the said Letters Patent No. 534543, or



whether the Victor Talking Machine Company is now or ever was the licensee sole or exclusive or other under the said Letters Patent No. 534543, for the manufacture or sale of the said alleged invention alleged to be patented in said letters patent throughout the United States or any part hereof; or whether the complainants herein or either of them are now or ever were the owners, sole or exclusive or other, of the title legal or equitable or other, in or to the said Letters Patent No. 534543, or in or to the alleged improvements therein contained, or of all or any rights of action thereto pertaining, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Eleventh. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether complainants or either of them have expended any sum of money in practising said alleged invention or improvements alleged to be patented in said Letters Patent No. 534543, or in introducing the same into public use, and defendant denies that the same are of any value or practical utility; and denies that any public interest has been manifested therein; and denies that a large demand has been created for apparatus constructed in accordance with or embodying the same; and denies that it has any knowledge or information sufficient to form a belief as to whether complainants are now or ever were ready or able to supply the same, and leaves complainants to make such proof thereof as they may be advised is material or necessary. Defendant denies that the public in any part of the United States has recognized or acquiesced in the claim that the said Berliner was the first or original inventor of the said alleged invention, or that the Patent No. 534543 was good or valid; and denies that the public has acknowledged the claims of



complainants to the rights, exclusive or other, to the said alleged invention under said patent; and denies that but for the alleged infringement or wrongs complained of in the bill of complaint herein, or of alleged recent infringements encouraged by the alleged unlawful acts of this defendant, complainants would be in possession or enjoyment of the said letters patent and alleged invention or of any income derivable therefrom; and denies that it has any knowledge or information sufficient to form a belief as to whether the alleged predecessors in title of complainants or any of them have ever acquiesced in any infringement of their alleged rights in the premises, and leaves complainants to make such proof thereof as they may be advised is material or necessary.

Twelfth. Defendant denies that it has ever had any knowledge or information sufficient to form a belief as to any of the facts set forth in the bill of complaint save as it has been informed thereof by the bill of complaint herein, and denies that it has contrived to injure complainants or either of them, or to deprive them or either of them of any benefit or advantage which might or otherwise would accrue to them or either of them from said devices, methods or things; and denies that it has ever made, sold or used, or is now making, selling or using apparatus or things relative to sound-recording or reproducing having or containing the devices or things patented in said Letters Patent No. 534543, or has ever employed or is now employing any method covered by the said letters patent, or in any respect the same; and denies that the right, exclusive or other, to make, use or vend which to others to use is vested in complainants or in either of them and leaves complainants to make such proof thereof as they may be advised is material or necessary.



Thirteenth. Upon information and belief defendant denies that it has ever been notified by complainants or either of them of the alleged rights of complainants or either of them in the premises, or of the fact that it was infringing any letters patent owned by the complainants or either of them, and denies that such ever was the fact; and that it was ever notified to desist from any such infringement; and denies that it has continued or is still continuing to manufacture, sell or use the said alleged infringing devices or things; and denies that it has so done to the damage of complainants or of either of them.

Fourteenth. Defendant denies that it has any knowledge or information sufficient to form a belief as to whether complainants have given notice to the public that the said alleged invention is patented; or whether complainants have affixed or caused to be affixed to all apparatus or devices manufactured or sold under their authority the word "Patented" together with the day and year of the grant of the said patent, and this defendant denies that it has had knowledge of such notice and leaves complainants to make such proof thereof as they may be advised is material or necessary; and upon information and belief defendant alleges that prior to the beginning of this suit and since the issue of said letters patent, persons acting under the authority of complainants and of their alleged predecessors in title and in interest have, within the United States, made and vended articles in accordance with said patent without affixing thereto the word "Patented" together with the day and year the patent was granted.

Fifteenth. Defendant denies that it has ever made or sold, or intends to continue to make or to sell within the Southern District of New York or



elsewhere within the United States the said patented devices or things having or containing the alleged patented features or any of them, or in any respect the same in construction, operation or effect as in complainants' said letters patent mentioned, or employing any method covered by said letters patent; and denies that it has so done without the license of complainants or of either of them; or without any license whatsoever, or against the will of complainants or either of them; or in violation of the rights of them or of either of them; or to the damage or injury of complainants or of either of them; and denies that it has ever advertised or is now advertising any such infringement and denies that it has ever made any profit by any such unlawful or infringing manufacture and sale; and denies that it has ever been requested by complainants or by either of them to pay over to them or to either of them any such profits; and denies that it has ever refused to pay over to complainants or to either of them any such profits; and denies that it has ever refused to desist from any further infringement of said letters patent; and denies that it has ever done or caused to be done any act, thing or doing in violation of any right or privilege vested in complainants or in either of them by virtue of the said letters patent or contrary to equity or good conscience, or tending to the injury of complainants or of either of them in the premises; and denies that the continuance by defendant of anything heretofore done by defendant will damage or injure complainants or either of them, or depreciate or destroy the value of any franchises which they or either of them are entitled to under the patent aforesaid; or will deprive complainants or either of them of any benefit or advantage for the loss of which there exists no adequate remedy at law. Defendant further answering alleges that at no time and at no place



has it in any way infringed upon the said letters patent or any of the claims thereof; or made articles; devices or things in accordance with the alleged invention set forth and claimed in said letters patent, or infringed or trespassed upon any right, privilege, interest or franchise of complainants or of either of them, or of any of their predecessors in title or interest, in the premises, in, to or under said letters patent, and defendant alleges upon information and belief that complainants, well knowing that defendant has in no way infringed upon their rights in the premises, and complainants being competitors of defendant in the talking machine business, brought this suit for business purposes, and principally for the purpose of advertising the same and endeavoring thereby to injure defendant, contrary to justice, equity and good conscience.

Sixteenth. Defendant further answering alleges on information and belief that prior to the alleged invention or discovery by said Emile Berliner of the alleged improvements and inventions described and claimed in said Letters Patent No. 534543, and more than two years prior to the filing of his application therefor, the same and all material and substantial parts thereof had been shown, described, patented and published in the following patents and publications, to wit:

#### LETTERS PATENT OF THE UNITED STATES.

Number.	Date.	Patentee.
17146	Apr. 28, 1857	Charles H. Field
32959	July 30, 1861	O. H. Bogardus
52292	Jan. 30, 1866	T. Kennedy
56141	July 3, 1866	Theodore Cooper
72521	Dec. 24, 1867	Ralph S. Mershon
93619	Aug. 10, 1869	L. Hillman



111859	Feb. 14, 1871	Fred. B. Miles
115934	June 13, 1871	James M. Connor
120096	Oct. 17, 1871	Perky
153084	July 14, 1874	Maurice Joyce
153212	July 21, 1874	Geo. R. Babbitt
138006	Apr. 22, 1873	Cooke
174715	Mar. 14, 1876	Robt. B. Atchison
183920	Oct. 31, 1876	John C. Guerrant
191464	May 29, 1877	Loring Pickering
219939	Sept. 23, 1879	A. Wilford Hall
222292	Dec. 2, 1879	Thomas L. Luders
225457	Mar. 16, 1880	Milton Bradley
231065	Aug. 10, 1880	Robt. M. Lockwood, <i>et al.</i>
232978	Oct. 5, 1880	John W. Kenyon
238929	Mar. 15, 1881	Wm. A. Ieggio
250697	Dec. 13, 1881	M. Wheless
266746	Oct. 31, 1882	Seth E. Beedy
271903	Feb. 6, 1883	A. S. Nichols
277349	May 8, 1883	J. Harris Rogers
279292	June 12, 1883	James H. M. Wal- dorp
238665	Aug. 21, 1883	James W. Rogers
287166	Oct. 23, 1883	Christopher C. Reyn- olds
295219	Mar. 18, 1884	John Absterdam
298030	May 6, 1884	Albert Schmid
296376	Apr. 8, 1884	Rufus Anderson
304640	Sept. 2, 1884	Hackenberg
305178	Sept. 16, 1884	Geo. M. Guerrant, <i>et</i> <i>al.</i>
336203	Feb. 16, 1886	C. A. Bell
341212	May 4, 1886	A. G. & C. A. Bell
341213	May 4, 1886	Bell & Tainter,
341214	May 4, 1886	Bell & Tainter
341287	May 4, 1886	Sumner Tainter
341288	May 4, 1886	S. Tainter
32192	Jan. 9, 1855	W. J. Casselman
349664	Sept. 21, 1886	Rodwell



356677	Feb. 1, 1887	C. J. Hohenstein
362100	May 3, 1887	Maloney
372786	Nov. 8, 1887	E. Berliner
364472	June 7, 1887	L. Bock, Jr.
374133	Nov. 29, 1887	C. S. Tainter
375579	Dec. 27, 1887	C. S. Tainter
380535	Apr. 3, 1888	C. S. Tainter
382790	May 15, 1888	E. Berliner
383299	May 22, 1888	W. W. Jacques
385886	July 10, 1888	C. S. Tainter
385887	July 10, 1888	C. S. Tainter
392796	Nov. 13, 1888	C. E. Hadley
392953	Nov. 13, 1888	G. H. Herrington
393190	Nov. 20, 1888	C. S. Tainter
393191	Nov. 20, 1888	C. S. Tainter
393640	Nov. 27, 1888	E. T. Gilliland
397856	Feb. 12, 1889	G. H. Herrington
399264	Mar. 12, 1889	G. H. Herrington
399265	Mar. 12, 1889	G. H. Herrington
400629	Apr. 2, 1889	C. Batchelor
404850	June 11, 1889	G. W. Littlehales
407127	July 16, 1889	H. F. Searle
408649	Aug. 6, 1889	D. W. Brown
408998	Aug. 13, 1889	W. B. Tattershall
409003	Aug. 13, 1889	G. Bettini
409004	Aug. 13, 1889	G. Bettini
409005	Aug. 13, 1889	G. Bettini
413282	Oct. 22, 1889	W. W. Jacques
421450	Feb. 18, 1890	C. S. Tainter
424914	1890	J. H. White
424956	Apr. 8, 1890	D. W. Brown
427279	May 6, 1890	W. Suess
428273	May 20, 1890	M. L. Deering
428646	May 27, 1890	C. S. Tainter
428750	May 27, 1890	L. Glass & W. S. Arnold
428751	May 27, 1890	L. Glass & W. S. Arnold
429079	May 27, 1890	O. P. Austin



429827	June 10, 1890	J. H. White
430759	June 23, 1890	R. H. St. John
431883	July 8, 1890	L. F. Douglass
432462	July 15, 1890	J. H. White
432886	July 22, 1890	J. P. Magenis
435055	Aug. 26, 1890	Denning
436576	Sept. 16, 1890	J. Daniels
440046	Nov. 4, 1890	J. H. Ling
440153	Nov. 11, 1890	I. W. Heysinger
441261	Nov. 25, 1890	Goodwin & Burnett
441609	Nov. 25, 1890	G. A. Beach
454947	June 30, 1891	McMahon
449349	Mar. 31, 1891	P. T. Dodge
458916	Sept. 1, 1891	Oxley
460338	Sept. 29, 1891	I. W. Heysinger
462687	Nov. 10, 1891	Bruening
466922	Jan. 12, 1892	J. F. Ott
467530	Jan. 26, 1892	J. H. White
472417	Apr. 5, 1892	E. L. Wilson
474410	May 10, 1892	Rosenthal & Frank
475490	May 24, 1892	L. F. Douglass
479431	July 26, 1892	V. Lahola
486394	Nov. 15, 1892	W. Bruening
486608	Nov. 22, 1892	W. Bruening
488379	Dec. 20, 1892	G. Bettini
488380	Dec. 20, 1892	G. Bettini
488381	Dec. 20, 1892	G. Bettini
489666	Jan. 10, 1893	E. L. Wilson
493719	Mar. 21, 1893	W. G. Henderson
499370	June 13, 1893	W. Bruening
503610	Aug. 22, 1893	J. W. Macintosh
505910	Oct. 3, 1893	J. W. Wassenich
506348	Oct. 10, 1893	C. S. Tainter
510656	Dec. 12, 1893	C. S. Tainter
515811	Mar. 6, 1894	A. D. Andrews
518190	Aug. 10, 1894	A. K. Keller
518191	Aug. 10, 1894	A. K. Keller
518192	Aug. 10, 1894	A. K. Keller
520106	May 22, 1894	H. B. Cox



527755	Oct. 16, 1894	T. H. Macdonald
528273	Oct. 30, 1894	H. D. Lioret
532851	Jan. 22, 1895	J. E. Wassenich

and in the following letters patent of the United States granted to Thomas A. Edison:

Number.	Date.
200521	Feb. 19, 1878
201760	Mar. 26, 1878
213554	Mar. 25, 1879
227679	May 18, 1880
382414	May 8, 1888
382416	May 8, 1888
382417	May 8, 1888
382418	May 8, 1888
382419	May 8, 1888
382462	May 8, 1888
386974	July 31, 1888
393462	Nov. 27, 1888
393463	Nov. 27, 1888
393464	Nov. 27, 1888
393465	Nov. 27, 1888
393466	Nov. 27, 1888
393966	Dec. 4, 1888
393967	Dec. 4, 1888
393968	Dec. 4, 1888
394105	Dec. 4, 1888
394106	Dec. 4, 1888
397289	Feb. 5, 1889
397706	Feb. 12, 1889
400646	Apr. 2, 1889
400647	Apr. 2, 1889
400648	Apr. 2, 1889
400649	Apr. 2, 1889
400650	Apr. 2, 1889
406568	July 9, 1889
406569	July 9, 1889
406570	July 9, 1889



406571	July	9, 1889
406572	July	9, 1889
406573	July	9, 1889
406574	July	9, 1889
406575	July	9, 1889
406576	July	9, 1889
414759	Nov.	12, 1889
414760	Nov.	12, 1889
414761	Nov.	12, 1889
423039	Mar.	11, 1890
426527	Apr.	29, 1890
430274	June	17, 1890
430276	June	17, 1890
430277	June	17, 1890
430278	June	17, 1890
430570	June	17, 1890
437423	Sept.	30, 1890
437424	Sept.	30, 1890
437425	Sept.	30, 1890
437426	Sept.	30, 1890
437427	Sept.	30, 1890
437429	Sept.	30, 1890
443507	Dec.	30, 1890
448780	Mar.	24, 1891
448781	Mar.	24, 1891
450740	Apr.	21, 1891
453741	June	9, 1891
454941	June	30, 1891
454942	June	30, 1891
456301	July	21, 1891
456302	July	21, 1891
457344	Aug.	11, 1891
460123	Sept.	20, 1891
465972	Dec.	29, 1891
484582	Oct.	18, 1892
484583	Oct.	18, 1892
484584	Oct.	18, 1892
484585	Oct.	18, 1892
488189	Dec.	20, 1892



488190	Dec. 20, 1892
488191	Dec. 20, 1892
496191	Apr. 23, 1893
499879	June 20, 1893
500280	June 27, 1893
500281	June 27, 1893
500282	June 27, 1893
513095	Jan. 23, 1894
513097	Jan. 23, 1894
526147	Sept. 18, 1894

## LETTERS PATENT OF GERMANY.

Emile Berliner	No. 45048	Nov. 8, 1887
Emile Berliner	No. 47099	May 16, 1888
Emile Berliner	No. 53662	Nov. 20, 1889

## LETTERS PATENT OF GREAT BRITAIN.

1857	No. 1912	William Mann
1854	No. 1206	Wiley, <i>et al.</i>
1860	No. 324	Aime L. E. Brittmayer
1865	No. 682	Lutwyche, <i>et al.</i>
1870	No. 325	Henry B. Greenwood
1877	No. 2909	Edison
1878	No. 191	Pritchett
1878	No. 1644	Edison
1878	No. 1988	Cour
1878	No. 3804	Bailey
1878	No. 3916	Varey
1878	No. 4074	Arnaud
1878	No. 4951	Wallich
1880	No. 495	Clark
1880	No. 631	Engel
1880	No. 1151	Courtenay
1881	No. 3129	Walker
1882	No. 2259	Barney
1882	No. 291	Hadden
1882	No. 3173	Imray
1886	No. 1947	Taylor



1886	No.	2081	de Combettes
1886	No.	2268	Bell
1886	No.	6027	Johnson
1886	No.	6042	Johnson
1886	No.	6047	Johnson
1886	No.	6062	Johnson
1886	No.	9453	Wostear
1886	No.	11499	Lake
1887	No.	15232	Berliner
1887	No.	16342	Anders
1887	No.	16384	Johnson
1887	No.	17175	Gouraud
1888	No.	569	Hedick
1888	No.	616	Brookes
1888	No.	1851	Johnson
1888	No.	1851a	Johnson
1888	No.	5307	Gouraud
1888	No.	7204	Berliner
1888	No.	9762	Adams-Randall
1888	No.	9981	Johnson
1888	No.	9996	Adams-Randall
1888	No.	12593	Gouraud
1888	No.	12594	Gouraud
1888	No.	12860	Edmunds
1888	No.	16212	Gouraud
1888	No.	16480	Johnson
1888	No.	16481	Johnson
1888	No.	17937	Madgen
1888	No.	18715	Smith
1889	No.	1058	Adams-Randall
1891	No.	15206	Gouraud
1893	No.	2690	Adams-Randall
1893	No.	4685	Bott
1893	No.	8248	Adams-Randall
1893	No.	23366	Lieret
1893	No.	24899	Young
1894	No.	1478	Young
1894	No.	6482	Moreau & Munier
1894	No.	7057	Quilton



1894 No. 15737 The Edison-Bell Phonograph Corporation, Ltd., and Wilkinson

1894 No. 16878 Lacey

1894 No. 24588 Robinson

and also in the following patents of Great Britain:

For the year 1889:

Nos. 1058, 5507, 5573, 7625, 7794, 9633, 11866, 12421, 12762, 13841, 15459, 16850, 19153, 19829, 20257, 1868, 13412, 15459.

For the year 1890:

Nos. 4681, 6685, 8197, 11456, 11668, 11669, 15245, 20290, 20306.

For the year 1891:

Nos. 5562, 6299, 8792, 8853, 10357, 13480, 15206, 18494, 21250.

For the year 1892:

Nos. 198, 11017, 11990, 15709, 16014.

For the year 1895:

Nos. 8072, 9526.

#### LETTERS PATENT OF FRANCE.

Thomas A. Edison	121697	Feb. 19, 1878
Patent of addition thereto		Feb. 19, 1878
Thomas A. Edison	129974	Sept. 16, 1878
Charles Cros	124213	July 27, 1878
Patent of addition thereto		Oct. 3, 1878
Antonio Vicini	128215	Mar. 17, 1879
Charles Wylier	135688	May 20, 1880
Patent of addition thereto		Mar. 23, 1880
Patent of addition thereto		July 11, 1880
Patent of addition thereto		Sept. 20, 1883
Paul Goloubitisky	145584	Dec. 7, 1881
Patent of addition thereto		Mar. 15, 1882
Patent of addition thereto		Sept. 26, 1883
Morel	146670	Mar. 17, 1882
Morel	146673	Mar. 17, 1882
Claude A. Terrier	156749	Nov. 8, 1883
Emile Berliner	186827	Nov. 8, 1887



Emile Berliner	190602	May 15, 1888
Emile Berliner	207090	July 19, 1890
Werner Suess	205491	May 6, 1890

## LETTERS PATENT OF GERMANY.

Thomas A. Edison	12631	July 12, 1878
Kleist & Co.	11053	Jan. 24, 1879
Thomas A. Edison	14308	Aug. 18, 1891
Thomas A. Edison	12631	Apr. 27, 1881

## LETTERS PATENT OF CANADA.

Thomas A. Edison	8026	Oct. 17, 1877
		Issued Oct. 20, 1877.
Thomas A. Edison	9282	Oct. 19, 1878
Emile Berliner, assignee of W. Suess,	41901	Feb. 11, 1893

Also the following letters patent granted to Thomas A. Edison in the countries named, to wit:

Belgium—No. 43984, dated Jan. 31, 1878, and No. 45375, dated June 29, 1878.

Italy—No. 422, dated February 8, 1878, and No. —, dated July 4, 1878.

Austria—, dated Jan. 1, 1879, and , dated Jan. 8, 1879.

Spain—, dated May 6, 1878.

Russia—No. 1161, dated February 15-27, 1882.

Norway—, dated Oct. 8, 1878.

Sweden—, dated Mar. 29, 1879.

Denmark—No. 1345, dated October 31, 1878.

India—, deposited Mar. 20, 1879.

New South Wales—, dated Sept. 1, 1878.

Victoria—, dated August 13, 1879, and No. 2549, dated August 15, 1878.

## PRINTED PUBLICATIONS.

The Electrical World for August 18, 1888, article on "Improved Gramophone," published at New York, N. Y.



Journal of the Franklin Institute, issue of December, 1895, pp. 419-437, printed and published at Philadelphia by the Franklin Institute.

Journal of the Franklin Institute, Vol. 125, p. 425, etc., printed and published in 1888 in Philadelphia by the Franklin Institute.

Journal of the Society of Telegraphic Engineers, Vol. 8, p. 303, etc., printed and published in the year 1879 in London, England.

Engineering, Vol. 27, p. 326, *et seq.*, published at London, Apr. 18, 1879, edited by W. H. Maw and J. Dredge.

Comptes Rendus, Vol. 85, p. 1082, *et seq.*, deposited by Chas. Cros, April 30, 1877, description of phonographs and their operation.

La Nature, issue of May 4, 1879, p. 349, etc.

Journal of the Society of Telegraph Engineers and Electricians, Vol. 8, p. 303, etc., published at London, Apr. 9, 1870.

The Telephone, the Microphone and the Phonograph, by Count du Moucel, chapter on Phonographs, pp. 235 to 261, etc., published at New York, 1879, by Harper & Bros.

The Speaking Telephone, Talking Phonograph and other novelties, by Geo. B. Prescott, Chap. 10, pp. 292 to 308, etc., published at New York City, 1878.

Elementary Treatise on Natural Philosophy, by A. P. Deschanel, part 3, pp. 824, 825, published at London in the year 1872 by Blackie & Son.

Le Rappel, issue of December 11, 1877, published at Paris, France.

Le Rappel, issue of January 15, 1878, published at Paris, France.

The World's Weekly Review of Scientists, Vol. 47, pp. 580, *et seq.*, published by Abbe Moigno, September, December, 1878.

Dana & Silliman's American Journal of Science



and Art, Vol. VIII, pp. 130-131, New Haven, Conn., 1874.

Le Telephone, Bibliothique des Merveilles, par le Comte Th. du Moucel, Paris, France, 1880, p. 366.

The Electrical World for November 12, 1887, published at New York, N. Y., article or 'Berliner's Gramophone.'

and were described, shown and patented in various other prior publications and patents, the dates and names of which are at present unknown to defendant; but defendant prays the right to insert by amendment to its answer said publications and patents when ascertained in the course of an investigation as to the prior knowledge and use and patents of said alleged improvements and inventions in which defendant is now earnestly engaged.

Seventeenth. Defendant further answering alleges on information and belief that in view of the state of the art at and before the time at which said Emile Berliner is alleged in said bill of complaint to have invented or discovered said alleged improvements and invention, said Emile Berliner was not the original or first inventor or discoverer of any material or substantial part of the alleged improvements and invention described or claimed in said Letters Patent No. 534543 and that said Letters Patent No. 534543 do not and did not describe, specify or claim any subject matter patentable at said time under the statutes of the United States, and that said letters patent are and always have been null and void.

Eighteenth. Defendant further answering, alleges on information and belief that prior to the application in this country for a patent therefor and prior to and after the date of the issue of said Letters Patent No. 534543, said Emile Berliner and



his alleged assign abandoned and had abandoned before the commencement of this suit to the public the alleged improvements and invention claimed to be patented in said Letters Patent No. 534543.

Nineteenth. Defendant further answering alleges on information and belief that prior to the time when the said Emile Berliner is alleged in said bill to have made the alleged improvements and invention described and claimed in said Letters Patent No. 534543, and that more than two years before the application of said Berliner in this country for letters patent aforesaid, said alleged improvements and invention were known and used by others in this country, and were in public use and on sale in this country by divers persons, and among others by the following persons, to wit:

Thomas A. Edison, at Menlo Park, N. J., New York, N. Y., and elsewhere, present residence Llewellyn Park, N. J.

John F. Ott, at Menlo Park, N. J., Orange, N. J., New York, N. Y. and elsewhere present residence Orange, N. J.

Edward H. Johnson, at Menlo Park, N. J., New York, N. Y., and elsewhere, present residence Greenwich, Conn.

Charles Bachelor, at Menlo Park, N. J., New York, N. Y., and elsewhere, present residence New York, N. Y.

John Kruesi, at Menlo Park, N. J., New York, N. Y. and elsewhere, present residence Schenectady, N. Y.

James U. McKenzie, at Menlo Park, N. J., New York, N. Y., and elsewhere, present residence Brooklyn, N. Y.

George H. Herrington, at Wichita, Kan., etc., present residence Wichita, Kan.

Isaac W. Heysinger, at Philadelphia, Pa., and elsewhere, present residence Philadelphia, Pa.



C. S. Tainter, at Washington, D. C., and elsewhere,  
present residence Washington, D. C.

Maurice Joyce, at Washington, D. C., and else-  
where, present residence Washington D. C.

Christopher C. Reynolds, at Prescott, Ariz., and  
elsewhere, present residence Prescott, Ariz.

John C. English, at New York, N. Y., and else-  
where, present residence Camden, N. J.

Henry J. Hagen, at Orange, N. J., and elsewhere,  
present residence Orange, N. J.

Walter Miller, at Orange, N. J., and elsewhere,  
present residence Orange, N. J.

Chichester A. Bell, at Washington, D. C., and else-  
where, present residence Washington, D. C.

Sumner Tainter, at Washington, D. C. and else-  
where, present residence Washington, D. C.

W. W. Jacques at Newton, Mass., and elsewhere,  
present residence, Newton, Mass.

Charles E. Hadley, at Washington, D. C., and else-  
where, present residence Washington, D. C.

E. T. Gilliland, at New York, N. Y., and elsewhere,  
deceased.

George W. Littlehales at Pottsville, Pa., present  
residence Pottsville, Pa.

Gianni Bettini at New York, N. Y., and elsewhere,  
present residence Paris, France.

Leon F. Douglass, at Chicago, Ill., and elsewhere,  
present residence Philadelphia, Pa.

Cleveland Walcutt, at New York, N. Y., and else-  
where, present residence Paris, France.

Edward F. Leeds, at New York, N. Y., and else-  
where, present residence New York, N. Y.

John H. White, at Washington, D. C., present resi-  
dence Washington, D. C.

Henri J. Lioret, at New York, N. Y., Washington,  
D. C., and elsewhere, present residence Paris,  
France.

Edward H. Amet at Chicago, Ill., Waukegan, Ill.,



and elsewhere, present residence Waukegan, Ill.

Alfred C. Clark, at New York, N. Y., Camden, N. J., and elsewhere, present residence Paris, France.

Eldridge R. Johnson at Camden, N. J., New York, N. Y. and elsewhere, present residence Philadelphia, Pa.

Victor H. Emerson, at New York, N. Y., Bridgeport, Conn., and elsewhere, present residence Newark, N. J.

William E. Gilmore at West Orange, N. J., and elsewhere, present residence Orange, N. J.

Thomas B. Lambert, at Chicago, Ill., and elsewhere, present residence Chicago Ill.

Henry G. Wolcott, at Fishkill, N. Y., and elsewhere, present residence Fishkill, N. Y.

George H. Stevens, at Toledo, Ohio, and elsewhere, present residence Toledo, Ohio.

A. N. Petit, at Newark, N. J., and elsewhere, present residence London, England.

James K. Reynard, at Newark, N. J., and elsewhere, present residence Newark, N. J.

Marshall C. Lefferts, at New York, N. Y., and elsewhere, present residence New York, N. Y.

Jonas W. Aylsworth, at East Orange, N. J., West Orange, N. J., and elsewhere, present residence East Orange, N. J.

George H. Burt, at New York, N. Y., Camden, N. J., and elsewhere, present residence Boston, Mass.

American Graphophone Co., at Washington, D. C., New York, N. Y., Bridgeport, Conn., and elsewhere, present residence at places aforesaid and, West Va.

Columbia Phonograph Co., at Washington, D. C., and elsewhere, present residence Washington, D. C.



Harry B. Cox, at Hartford, Conn., and elsewhere,  
last known residence Hartford, Conn.

Jos. E. Wassenich, at Chicago, Ill., and elsewhere,  
last known residence Chicago, Ill.

Werner Suess, at Washington, D. C., and else-  
where, last known residence Washington,  
D. C.

Edward L. Wilson, at Washington, D. C., and else-  
where, last known residence Washington,  
D. C.

Chas. W. Jones, at Washington, D. C., Philadel-  
phia, Pa., and elsewhere, last known residence  
Philadelphia, Pa.

John D. Smoot, at Philadelphia, Pa., and else-  
where, present address Berlin, Germany.

Albert T. Armstrong, at New York, N. Y., and else-  
where, deceased.

Frederick Geirling, at Philadelphia, Pa., and else-  
where, present address London, England.

W. Barry Owen, at Philadelphia, Pa., and else-  
where, present address London, England.

O. P. Ladow, at Philadelphia, Pa., New York, N.  
Y., and elsewhere, present address, New York,  
N. Y.

R. A. Glostzer, at Washington, D. C., Philadel-  
phia, Pa., and elsewhere, present address, Ber-  
lin, Germany.

William Darby, at Philadelphia, Pa., and else-  
where, present address, Philadelphia, Pa.

Werner Suess, at Washington, D. C., Philadel-  
phia, Pa., New York, N. Y., and elsewhere,  
deceased, last known residence Washington,  
D. C.

Emile Berliner, at Washington, D. C., Philadel-  
phia, Pa., New York, N. Y., and elsewhere,  
present residence Washington, D. C.

T. Commerford Martin, at Washington, D. C.,  
Philadelphia, Pa., and New York, N. Y., pres-  
ent residence New York, N. Y.



Answer.

Joseph Wetzler, at Washington, D. C., Philadelphia, Pa., New York, N. Y., and elsewhere, present residence, London, England.

Carl J. Hohenstein, at New York, N. Y., and elsewhere, present residence New York, N. Y.

Chas. R. Cross, at Boston, Mass., and elsewhere, present residence Boston, Mass.

David W. Brown, at Washington, D. C., and elsewhere, present residence Washington, D. C.

W. W. Jacques, at Washington, D. C., New York, N. Y., and elsewhere, present residence Newton, Mass.

Mark E. Deering, at Cleveland, O., and elsewhere, present residence at Cleveland, O.

William McMahon, at Rahway, N. J., and elsewhere, present residence at Rahway, N. J.

Eustace Oxley, at Boston, Mass., and elsewhere, present residence at Boston, Mass.

Wm. Bruening, at East Orange, N. J., and elsewhere, present residence East Orange, N. J.

and by divers other persons in this country, the names and residences of which persons are not at present known to defendant, but defendant prays leave to insert such names and residences, together with the places, in its answer when ascertained in the course of an investigation in which defendant is still earnestly engaged.

Twentieth. That said Berliner having acquiesced in the rejection by the Patent Office of certain claims set forth in his application for said Letters Patent No. 534543, as will fully appear from the file-wrapper and contents of said patent when produced, he and his assigns are estopped from claiming a construction of the patent and its claims broad enough to include the devices made and sold by defendants.

Twenty-first. For the purpose of deceiving the



public, the description and specification filed by the patentee, said Emile Berliner, in the Patent Office, was made to contain less than the whole truth relative to his said alleged invention and discovery, and more than is necessary to produce the desired result. The said patentee, Emile Berliner, surreptitiously and unjustly obtained the said patent for that which was, in fact, invented by others who were each using reasonable diligence in adapting and perfecting the same, to wit: Werner Suess, and the other persons, who, in Paragraph Nineteenth hereof, are each alleged to have known and used said alleged improvements and invention in this country, and to have had the same in public use and on sale in this country more than two years before the application of said Berliner in this country for said letters patent therefor.

Twenty-second. Defendant further answering alleges that said letters patent are inoperative and invalid by reason of the patentee, said Emile Berliner, claiming as his own invention and discovery more than he had a right to claim as new; and by reason of said patentee claiming as his own the inventions of others set forth and described in the prior ~~the~~ patents and publications enumerated in Paragraph Sixteenth hereof.

Twenty-third. Defendant further answering alleges that before said alleged invention and discovery of said Emile Berliner was patented in United States by said Letters Patent No. 534543, granted February 19, 1895, the same was patented and caused by said Emile Berliner to be patented in foreign countries, by reason whereof under §4387 of the Revised Statutes of the United States, said letters patent of the United States were limited to expire at the same time with said foreign patents and each of them, and with the one having the shortest term; that the foreign patents pre-



viously granted and previously patenting said alleged invention and discovery in foreign countries, and limiting the term of said letters patent of the United States as aforesaid, are as follows:

#### LETTERS PATENT OF GREAT BRITAIN.

No. 15232 of Nov. 8, 1887 to Emile Berliner, for fourteen years from said date, which patent and the term thereof expired on Nov. 8, 1901.

No. 7204 of May 15, 1888, to Emile Berliner, for fourteen years from said date, which patent and the term thereof expired on May 15, 1902.

#### LETTERS PATENT OF FRANCE.

No. 186827 of Nov. 8, 1887 to Emile Berliner, for fifteen years from said date, which patent and the term thereof expired on Nov. 8, 1902.

No. 190,602 of May 15, 1888, to Emile Berliner, for fifteen years from said date, which patent and the term thereof expired on May 15, 1903.

No. 297090 of July 19, 1890, to Emile Berliner, for fifteen years from said date, which patent and the term thereof expired July 19, 1905.

#### LETTERS PATENT OF GERMANY.

No. 45048 of Nov. 8, 1887, to Emile Berliner, for fifteen years from said date, which patent and the term thereof expired on Nov. 8, 1902.



No. 47099 of May 16, 1888, to Emile Berliner, limited to expire and it and its term did so expire, on Nov. 7, 1902, with said patent No. 45048 being an addition thereto.

No. 53622 of Nov. 20, 1889, to Emile Berliner, limited to expire and it and its term did so expire, on Nov. 7, 1902, with said patent No. 45048, being a second patent of an addition thereto.

#### LETTERS PATENT OF CANADA.

No. 41901 of Feb. 11, 1893 to Emile Berliner, for the term of six years from said date, which patent and the term thereof expired on Feb. 11, 1899.

Wherefore defendant alleges that said Letters Patent of the United States have long since expired and are not now in force or effect, and had expired before the commencement of this suit in equity; by reason whereof, neither complainants nor either of them are entitled or have ever been entitled to an injunction or any other relief against this defendant, and by reason whereof this Court of equity has not, and never has had jurisdiction of this suit, and by reason whereof complainant had at the time of the commencement of this suit an adequate remedy at law.

Defendant further answering alleges that said Emile Berliner before filing an application in the United States for said Letters Patent No. 534543, filed an application in Canada on May 5, 1891, as assignee of Werner Sness for Letters Patent of Canada, for the invention described and claimed in said Letters Patent No. 534543, and especially in claims 5 and 35 thereof, and in his petition for said



Letters Patent of Canada, said Emile Berliner declared that Werner Suess had invented said alleged new and useful improvements in gramophones, and that the same were not known or used by others before the invention thereof by said Werner Suess; that thereafter and upon said application and petition of said Emile Berliner, Letters Patent of Canada, No. 41901, of February 11, 1893, were issued to said Emile Berliner, assignee of said Werner Suess for the term of six years for said alleged new and useful improvements in gramophones described and claimed in said Letters Patent No. 534543; that said Canadian Letters Patent No. 41901 expired on February 11, 1899, with the expiration of the term of six years for which the same had been granted. Wherefore the defendant alleges that said Emile Berliner was not the inventor of any invention described or claimed in said Letters Patent No. 534543, and especially in claims 5 and 35 thereof, and that said Letters Patent No. 534543, under §4887 of the Revised Statutes of the United States could not and did not continue in force subsequent to the expiration of said Canadian Patent on February 11, 1899, as aforesaid, and have always been null and void.

Twenty-fourth. Defendant further answering prays the same benefit of the facts and things herein set forth as if for the reason thereof it had demurred to the said bill of complaint where a demurrer would have been proper, and the same benefit thereof as if it had specially pleaded to said bill where a plea would have been proper.

Twenty-fifth. Defendant upon information and belief denies every allegation in said bill contained not herein already admitted or denied.

All of which statements and defences this defendant is ready to aver, maintain and prove as this



Honorable Court shall direct, and prays hence to be dismissed with its reasonable costs in this behalf most wrongfully sustained. *Leeds & Callan*

~~TALK-O-PHONE COMPANY,~~  
(Seal: ~~Talk-O-Phone~~ *Leeds* By *E. P. Hubbell,*  
*Phone Company, New* General Manager.  
*York, Incorporated. 1879* *E. P. Leeds,*  
Louis Hicks, *Pres.*  
Solicitor and Counsel for Defendant.

State of New York, }  
County of New York, } ss.:  
*E. P. Leeds*

Edward ~~P. Hubbell~~, being duly sworn, says that the defendant herein, ~~Talk-O-Phone Company~~ *Leeds & Callan* is a corporation organized and existing under and by virtue of the Laws of the State of ~~Ohio~~ *New York*, and that he is ~~general manager~~ *President* thereof, and therefore makes this verification; that he has read the foregoing answer and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated to be alleged upon information and belief, and that as to those matters he believes it to be true. *E. P. Leeds.*

~~EDWARD P. HUBBELL.~~

Subscribed and sworn to before me this }  
20<sup>th</sup> day of December, 1905. }

T. P. Dalton,  
[NOTARY'S SEAL] Notary Public,  
Kings Co.

Cert. filed in New York Co.  
(Answer filed Dec. 21, 1905.)



IN THE CIRCUIT COURT OF THE UNITED  
STATES,

SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. ~~8888~~ 8797.

Suit on Berliner Gramophone Patent No. 534543.

VICTOR TALKING MACHINE COM-  
PANY, and the United States  
Gramophone Company,  
Complainants,

VS.

*Leeds & Catlin*  
~~THE TALK-O-PHONE COMPANY,~~  
Defendant.

The replication of the Victor Talking Machine Company and the United States Gramophone Company, complainants, to the answer of the ~~Talk-o-Phone Company~~, Respondent, *Leeds & Catlin Company*.

These repliants, saving and reserving unto themselves all and all manner of advantage and exception to the manifold insufficiencies of said answer of the respondent, ~~the Talk-o-Phone Company~~, *Leeds & Catlin Company*, for replication thereunto say, that they will aver and prove their said bill to be true, certain and sufficient in law to be answered unto and that the said answer of the respondent, ~~the Talk-o-Phone Company~~, *Leeds & Catlin Company*, is uncertain, untrue and insufficient to be replied unto by these repliants; without this that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, confessed and avoided, traversed or



Order to Show Cause.

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denied, is true; all of which matters and things these repliants are and will be ready to aver and prove as this Honorable Court shall direct; and humbly pray, as in and by their said bill they have already prayed.

Sgd. HORACE PETTIT.  
Of Counsel for Complainants.

February 3d, 1906.

Stimson & Williams,

Solicitors for Complainants.

[Replication filed February 5, 1906.]

**Order to Show Cause.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. 8859. 8797.

Suit on Berliner Gramophone Patent No. 534543.

VICTOR TALKING MACHINE COM-  
PANY, and the United States  
Gramophone Company,  
Complainants,

vs.

*Leeds & Catlin*  
THE TALK-O-PHONE COMPANY,  
Defendant.

And now, to wit: this 24th day of March, A. D., 1906, the complainants having filed their bill of complaint, upon the application of complainants' counsel, and upon the affidavits of Harry Cobb Kennedy, verified March 23, 1906, Albert C. Middleton, verified March 23, 1906, and ~~Harry Cobb Kennedy~~,

*John A. Fagan,*



verified March 24, 1906, and upon the exhibits filed in connection therewith and in support thereof, it is this day

Ordered that a preliminary injunction, in conformity with the prayer in said bill of complaint, issue out of and under the seal of this Court on the sixth day of April, A. D. 1906, unless the defendant shall show cause before me, on the 6th day of April, A. D. 1906, at ten o'clock in the forenoon, or as soon thereafter as counsel can be heard, in the Court rooms of the United States Circuit Court for the Southern District of New York, in the Federal Building, in the Borough of Manhattan, City and State of New York, why said preliminary injunction should not be issued against the defendants in the above entitled cause, as prayed in said bill of complaint; and it is further

Ordered, that a copy of this order and affidavits referred to herein be served upon the defendant; that the answering affidavits, if any, to be used by the defendant in opposition to the granting of said preliminary injunction at the hearing on this order to show cause, be filed in the office of the Clerk of this Court, on or before five o'clock on the afternoon of March 31st, 1906; and that the affidavits, if any, of the complainants in rebuttal, to be used by the complainants at the hearing on this order to show cause, be filed in the office of the Clerk of this Court before five o'clock on the afternoon of April 5th, 1906.

(Sgd.) E. HENRY LACOMBE,

U. S. C. J.

~~The exhibits referred to can be inspected at the office of the Clerk of this Court.~~

~~HORACE PETTIT,  
Of Counsel for Complainants.~~



Affidavit of John A. Fagan.

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**Affidavit of John A. Fagan Sur-Motion for Preliminary Injunction.**

UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. 8797.

Suit on Berliner Gramophone Patent, No. 534543.

VICTOR TALKING MACHINE COMPANY and the United States Gramophone Company,  
Complainants,

vs.

LEEDS & CATLIN COMPANY,  
Defendant.

City of New York, }  
County of Kings, } ss.:

John A. Fagan, New York City, State of New York, being duly sworn according to law, deposes and says as follows:

I reside at 327 Second Street, in the Borough of Brooklyn, in the City of New York, State of New York. In the Fall of 1903, I was in the employ of the Victor Distributing & Export Company, of New York, N. Y., and while in their employ I called at the place of business of the Leeds & Catlin Com-



pany, of No. 53 East 11th Street, in the Borough of Manhattan, City and State of New York, for the purpose of buying from said Leeds & Catlin Company a talking machine and sound records. The date upon which I called at the said place of business of the Leeds & Catlin Company was November 30, 1903, and at that time I purchased from the said Company a flat disc talking machine and five flat disc sound records for said talking machine. The said talking machine which I purchased was known as the "Ohio Talk-o-Phone" and on one side of the cabinet of said machine the following words appeared, - namely, "Ohio Talk-o-Phone, Toledo, Ohio, U. S. A.". This talking machine which I purchased at that time consisted of an oak cabinet with a hinged cover, which cover carried a spring motor on the inside and a turntable on the outside mounted upon the spindle of said motor. A swinging arm is pivoted to its outer end by a universal joint to the outer end of a bracket rigidly mounted upon said cabinet, this swinging arm being of metal, and carrying at its inner end a sound box, which sound box communicates with an amplifying horn also carried by said swinging arm, but removable therefrom.

The flat disc sound records which I purchased at that time were made of black hard material, having in their faces spiral grooves of even depth, with lateral undulations in the sides thereof made by the recorded sounds. These flat disc records have a gold seal impressed centrally in their front faces, upon which appears the words "Leeds Records," together with the data for identifying the number and name of the selection appearing upon the record. These records are adapted to be



used only in connection with the talking machines of the flat disk record type, such as the one I purchased, as above stated, and such talking machine is only adapted for use in connection with the flat disc sound record, like the one I purchased. And said machines and records are sold for use in connection with each other, and were so sold to me by the said Leeds & Catlin Company on November 30, 1903, as before stated. The machine, as sold to me, consisted of the said cabinet, as I have described, and the swinging arm, the sound box, an amplifying horn and a crank for winding up the motor, which parts accompany this affidavit, and are marked "Complainants' Exhibit, Defendant's Machine."

The flat disc sound records which I purchased from the Leeds & Catlin Company on the 30th of November, 1903, as before said, are five in number, and are marked "Complainants' Exhibit, Defendants' Sound Records."

For the said talking machine I paid the Leeds & Catlin Company on November 30, 1903, the sum of \$31.50, and for the five disc records I paid the said Leeds & Catlin Company the sum of \$2.45, and received from the said Leeds & Catlin Company a bill for these goods, containing the following items, namely:

To one Ohio Talking Mach.	31.50	
to 5 Leeds Disc Rds.	2.45	\$33.95

Recd Paymt  
Leeds & Catlin Co.



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Affidavit of John A. Fagan.

The said bill is attached hereto and marked  
"Complainants' Exhibit, Leeds & Catlin Bill."

Signed John A. Fagan.

Subscribed and sworn to before me }  
this 24th day of March, 1906.

Signed Otto F. Peterson,  
Notary Public,  
Kings Co., N. Y.



UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. 8797.

Suit on Berliner Gramophone Patent No. 534543.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants,

vs.

LEEDS & CATLIN COMPANY,  
Defendant.

"Complainants' Exhibit, Leeds & Catlin Co. Bill."  
(Signed) , Otto F. Peterson,  
Kings Co., N. Y.



**Complainants' Exhibit, Leeds & Catlin Co. Bill.**

No claims allowed unless made immediately on receipt of goods. Claims for Breakage, Loss or Detention to be made on the Transportation Companies.

Our responsibility ceases when we obtain a receipt for goods shipped in good order.

Terms C. O. D.

Leeds & Catlin  
Co.

Making the  
Loudest and  
Clearest  
Phonograph  
Records and  
Edison  
Phonograph  
Supplies at  
53 East  
Eleventh  
Street.

Conveyance

New York, Nov. 30, 03

Sold To J. Fagan

To one Ohio Talking Mach.	31.50
To 5 Leeds Disc Rds	2.45

\$33.95

Recd Paymt  
Leeds & Catlin Co.



**Affidavit of Harry Cobb Kennedy,  
sur Motion for Preliminary In-  
junction.**

UNITED STATES CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK.

In Equity No. 8859.

Suit on Berliner Gramophone Patent, No. 534543.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants,

VS.

THE TALK-O-PHONE COMPANY,  
Defendant.

State of New York, }  
City & County of New York, } ss.:

Harry Cobb Kennedy, being duly sworn accord-  
ing to law, deposes and says as follows: I am resi-  
dent of Philadelphia, Pa., and am conversant with  
the present litigation and in connection with this  
affidavit I produce a talking machine of the flat disc  
record type and also a flat disc sound record,  
adapted for use in connection with said machine,  
the said machine being marked Complainants' Ex-  
hibit, Defendant's Machine, and said sound record  
being marked Complainants' Exhibit, Defendant's  
Sound Record.

Upon information and belief I state that said ex-  
hibits defendant's machine and defendant's sound  
record were sold by the defendant, The Talk-o-



Phone Company, in the Borough of Manhattan, in the City of New York, in said State, and in the Southern District of New York, and that prior to the bringing of the bill of complaint, namely, October 1, 1904, the said defendant sold within the said Southern District of New York talking machines and sound records similar to the said Complainants' Exhibit, Defendant's Machine, and Complainants' Exhibit, Defendant's Sound Record.

The said Complainants' Exhibit, Defendant's Machine, is a machine for reproducing sounds from the record of the same and consists of a casing or cabinet in which is enclosed a motor, the spindle of which projects through the top of the cabinet and carries a turn-table. A rigid arm projects from one side of the cabinet, and a swinging arm is pivoted by a universal joint through the outer end of said rigid arm, and the free end of this swinging arm carries a sound box with which an amplifying horn communicates, which horn is also supported and carried by the said swinging arm. This machine is intended for use in connection with sound records like Complainants' Exhibit, Defendant's Sound Record, which sound record is of hard material, having in its face a spiral groove of even depth. In the sides of this groove are lateral undulations and when the sound record is placed upon the turn-table and is rotated thereby and the stylus of the sound box is in engagement with the said record groove, the rotation of the record not only causes the lateral undulations of the groove to vibrate the stylus and the diaphragm to reproduce the sound recorded by said lateral undulations, but also automatically propels and feeds the stylus and the sound box across the surface of the sound record, the swinging arm being free to vibrate laterally, as well as being vertically movable.

I am also informed and believe and state therefore that prior to the filing of the bill of complaint



Affidavit of Harry Cobb Kennedy. 49

herein the said defendant The Talk-o-Phone Company sold talking machines and sound records similar to complainants' exhibits, defendant's machine and defendant's sound record, in the Southern District of New York for use in connection with each other, that is to say, the said defendant sold sound records like Complainants' Exhibit, Defendant's Sound Record, for use in connection with machines like Complainants' Exhibit, Defendant's Machine. On the face of Complainants' Exhibit, Defendant's Record, is a label containing among other things the words "Talk-o-Phone Record The Talk-o-Phone Company."

(Signed) HARRY COBB KENNEDY.

Subscribed and sworn to before me }  
this 24th day of March, 1906. }

[SEAL.] (Sgd.) Jennie E. Dour,  
Notary Public,  
N. Y. Co.



**Affidavit of Albert C. Middleton sur  
Motion for Preliminary In-  
junction.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity No. ~~8332~~ 8797.

Suit on the Berliner Gramophone Patent, No.  
534543.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants,

VS.

*Leeds & Catlin*  
~~THE TALK-O-PHONE~~ COMPANY,  
Defendant.

Commonwealth of Pennsylvania, }  
City and County of Philadelphia, } ss.:

Albert C. Middleton, being duly affirmed, deposes  
and says as follows:

I am Secretary of the Victor Talking Machine  
Company, a corporation organized and existing un-  
der the laws of the State of New Jersey, and having  
its special place of business in the City of Camden,  
in said State, one of the complainants herein, and  
have been since its organization in October, 1901.

The said Victor Talking Machine Company man-  
ufactures disc talking machines, and records there-  
for, under United States Letters Patent to Emile  
Berliner, No. 534543, dated February 19, 1895, for



a gramophone, which patent I am informed and believe, as to Claims 5 and 35, has been held valid by the Circuit Court of Appeals for the Southern District of New York in a certain suit by the Victor Talking Machine Company and the United States Gramophone Company against the American Graphophone Company, the opinion of said Circuit Court of Appeals for the Second Circuit having been entered on or about March 9, 1906.

The Victor Talking Machine Company manufactures and sells various styles of talking machines and sound records constructed in accordance with the invention of said patent, and accompanying this affidavit is one style of talking machine and a disc sound record so manufactured and sold by said Victor Talking Machine Company, and which are marked "Complainants' Exhibit, Complainants' Machine," and "Complainants' Exhibit, Complainants' Sound Record." Said complainants' machine is the style of machine known as a flat disc record talking machine, which comprises a cabinet containing a motor and upright spindle which projects centrally through the top of the cabinet and carries a turn-table. A swinging arm is supported at its outer end by a laterally projecting rigid arm mounted upon the cabinet, the outer ends of the swinging arm and the rigid arm being connected by the universal joint to allow a free vertical and horizontal movement of the arm. The free end of the swinging arm is provided with means for carrying the sound box, which latter connects with an amplifying horn also carried by said swinging arm. Complainants' Exhibit, Complainants' Sound Record, is a flat disc of indestructible material, in the face of which is a spiral groove of even depth having lateral undulations representing the sounds to be reproduced. The stylus of the sound box engages the record groove of complainants' sound record, and when the latter is rotated with the turn-



table the stylus is laterally vibrated to set up vibrations in the sound box diaphragm corresponding to those recorded in the sound record groove, and at the same time said spiral record groove propels the stylus and reproducing apparatus automatically across the surface of the sound record independent of any other means.

The Victor Talking Machine Company has manufactured and sold this style of talking machine and sound record ever since its incorporation in October, 1901.

The said Complainants' Exhibit, Complainants' Machine, is manufactured for use only in connection with flat disc records similar to Complainants' Exhibit, Complainants' Sound Record, and the said sound records are manufactured for use only in connection with machines similar to said complainants' machine.

I have also examined Complainants' Exhibit, Defendant's Machine, and Complainants' Exhibit, Defendant's Record, and find that they not only embody the same structure, but, except as to non-essential and immaterial changes not effecting the general construction or operation of the device, they are duplicates of complainants' machine and complainants' record. It would be useless for me to describe defendant's machine and defendant's sound record in detail, as it would simply be a repetition of the description which I have heretofore given of complainants' machine and complainants' sound record, and, furthermore, the operation is the same, and both in complainants' and defendant's machines and records the machine is only capable of use in connection with a record of this description, and the record is only capable of use in connection with a machine of this description, and when in use and operation the spiral groove of even depth with lateral undulations in the sides of said groove not only impart to the



Affidavit of Albert C. Middleton.

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stylus which travels in said groove lateral undulations, which lateral undulations are imparted to the diaphragm to reproduce the recorded sounds, but said spiral groove automatically propels the stylus and the reproducing apparatus across the face of the record from the beginning to the termination of the composition or other matter recorded upon said record.

In other words, there is absolutely no essential difference in the construction of complainants' and defendant's machines and sound records, nor in their operations.

(Signed) ALBERT C. MIDDLETON.

Affirmed and subscribed to before  
me this twenty-third day of  
March, A. D. 1906.

[SEAL.]

(Sgd.) Alexander Park,  
Notary Public,  
Commission expires Feb. 6, 1909,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.



54 Affidavit of Harry Cobb Kennedy.

**Affidavit of Harry Cobb Kennedy Sur  
Motion for Preliminary Injunction.**

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity No. ~~8859~~ 8797.

Suit on the Berliner Gramophone Patent, No.  
534543.

VICTOR TALKING MACHINE COM-  
PANY and the United States  
Gramophone Company,  
Complainants.

VS.

*Frederick & Catlin*  
~~THE TALKING PHONE~~ COMPANY,  
Defendant.

Commonwealth of Pennsylvania, }  
City and County of Philadelphia, } ss.:

Harry Cobb Kennedy, being duly sworn accord-  
ing to law, deposes and says, as follows:

I am a member of the Bar, and an assistant to  
Horace Pettit, Esquire, of Counsel for the com-  
plainants in the above entitled cause, and am famil-  
iar with this litigation and the pleadings herein.  
The bill of complaint herein was filed October 1st,  
1904, and on November 7, 1904, the defendant ap-  
peared by counsel. On December 19, 1904, the de-  
fendant demurred to the bill of complaint, which  
demurrer was duly set down for argument on De-  
cember 2, 1904, and a note of issue duly filed to  
bring said demurrer on for argument at the earli-



Affidavit of Harry Cobb Kennedy.

est term of Court after which it had been set down for argument. The cause was on the calendar for the April, 1905, Term of this Court, but the Court adjourned before it was reached for argument, and it went over to the October Term, 1905. On October 23, 1905, over a year after the bill of complaint had been filed, the demurrer was argued, and on October 31, 1905, an opinion was filed by Judge Holt overruling the demurrers, and on November 22, 1905, an order was signed and filed in conformity with said opinion, and defendant's answer was filed on December 21, 1905, the replication being filed on February 7, 1906.

This suit is for infringement of the Berliner Patent No. 534543, for a gramophone, a copy of which is hereto annexed and marked "Complainants' Exhibit, Berliner Patent in Suit," and when the present suit was brought to issue on February 7, 1906, another suit for the infringement of this patent has been argued on appeal before the Circuit Court of Appeals for this Circuit, and was then awaiting the decision of said Court. This other suit, to which I refer was entitled the Victor Talking Machine Company and United States Gramophone Company vs. The American Graphophone Company, instituted in the United States Circuit Court for the Southern District of New York, in Equity No. 8627. This suit against the American Graphophone Company was vigorously defended and came on to final argument and full pleadings and proofs before Judge Hazel on June 5 and 6, 1905, and was taken under advisement by the Court, and on September 28, 1905, an opinion was filed by Judge Hazel holding Claims 5 and 35 of said Patent, No. 534543, in suit, valid and infringed by defendant's talking machine, also ordering an injunction, with costs, to complainants. A copy of said opinion by Judge Hazel is attached hereto



and marked "Complainants' Exhibit, Judge Hazel's Opinion." An application for re-hearing was argued on October 27, 1905, before Judge Hazel, and was refused, and on the same day a final decree was entered for the complainants, together with an order suspending the operation of the decree until adjudication by the Court of Appeals. Thereafter, an appeal was duly prosecuted and was argued on its merits before the United States Circuit Court of Appeals for the Second Circuit on January 17 and 18, 1906, and on March 9, 1906, the Circuit Court of Appeals, *per curiam*, affirmed the opinion of the lower Court sustaining the validity of Claims 5 and 35 and holding that these claims were infringed by the defendant's structure. A copy of said *per curiam* of the Court of Appeals is attached hereto and marked "Complainants' Exhibit, Court of Appeals *Per Curiam*." When the present suit of the Victor Talking Machine Company, et al, vs. The Talk-o-Phone Company was brought to issue on February 7, 1906, the said case against the American Graphophone Company had been taken under advisement by the Court of Appeals and had not been decided.

The patent in suit is for a gramophone or talking machine, that is to say, a machine for reproducing recorded sounds. The sounds to be reproduced are recorded in a flat disc sound record by means of spiral grooves of even depth containing lateral undulations conforming to the sound waves produced by the sounds to be recorded. This flat disc sound record is carried by a turn-table rotated by means of a suitable motor. To reproduce the sounds, a sound box or reproducing apparatus is employed. A swinging arm, suitably supported at one end, carries this sound box at its other end, the said sound box communicating with a suitable amplifying horn carried also by said swinging arm. The sound box



contains a diaphragm which is set in vibration by a stylus suitably connected therewith, which stylus enters the record groove and is laterally vibrated thereby. These lateral vibrations being reproduced in the diaphragm which sets up vibration within the sound box and amplifying horn similar to these recorded on the flat disc sound records, and also similar to the sound waves by which the record groove was made in the flat disc sound record.

Claims 5 and 35 of the patent in suit read, as follows:

"5. The method of reproducing sounds from a record of the same which consists in vibrating a stylus and propelling the same along the record by and in accordance with the said record, substantially as described."

"35. In a sound reproducing apparatus consisting of a traveling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described."

The United States Circuit Court of Appeals, in affirming the decree of the Court below in the *per curiam* filed March 9, 1906, stated as follows:

"In affirming this decretwe do not find it necessary to add anything to be careful and exhaustive discussion of the issues which will be found in Judge Hazel's opinion, with one single exception."

This single exception is, that without discussing the question raised in the Court below disposing of the defence of prior public use, and without expressing any definite opinion either way as to the manner in which it was decided by the Court below, the Court of Appeals held that on another ground,



namely that of continuing applications, his defence of prior public use would not avail the defendant, so that the manner in which Claim 5 and 35 were construed by the Court below thereby becomes the opinion of the Court of Appeals.

Prior to the invention of the patent in suit the reproducing styles of same reproducing machines was fed across the surface of the round record by a feed screw, or other means independent of the record itself, and the main distinction of the invention of the patent suit over the prior art is in the manner of the propelling of the stylus across the record, which is not accomplished by an auxiliary feed screw, but is due to the operating engagement of the stylus point with the record groove itself, independently of other means, or as Judge Hazel states in his opinion sustaining the validity and holding infringement of Claims 5 and 35:

"Complainants contend, and the proofs show, that the stylus attached to the diaphragm is arranged so as to permit the same to vibrate laterally, and that owing to lateral undulations in the walls of the record groove, a desirable swaying motion is imparted to the reproducer diaphragm. Concededly, the lateral undulations in the record automatically guide or propel the stylus and diaphragm in its course over the disc from the outer circumference toward the center, and the stylus travels in an apparently direct radial path while at the same instant of time it is pulsated or incited by the sound waves. The principle of operation in the Berliner machine is thought to be essentially different from that of the machine of Bell & Tainter. In the latter, an auxiliary joint or feed screw was necessary, as already stated, to effectuate the required passage of



the record over the joint of the stylus, or to cause the stylus and reproducer diaphragm to travel across the surface of the record. In complainant's patent, on the other hand, it is shown that the lateral vibrations of the stylus point and the propelling of the same over the surface of the record without mechanical assistance and through the means of the groove alone was the primary object of the inventor." \* \* \* "but from what has already been said regarding the Bell & Tainter Patent, it is manifest that the principle of Berliner's invention rests upon the practicability of propelling the stylus in the groove across the surface of the record without a feed screw or other mechanism. By such adaptation to what is known in the art as a zig-zag record (Complainant's record) certain imperfections in the talking machines were overcome, and sound, when reproduced, was rendered intelligible. There was, I think, patentable novelty in the method which accomplished the results stated." \* \* \* The essence of such claims would seem to include a sound record which, when in juxtaposition with a diaphragm and stylus propelled in the manner described, is thereby enabled to successfully accomplish the primal object and purpose of the invention."

In the said suit against the American Graphophone Company so decided by the Court of Appeals as aforesaid, I have examined the exhibits of complainants' and defendant's machine and records, and am conversant with the same, and except for certain specific details of structure, non-essential changes of material and very slight changes in ornamentation or style, Complainants' Exhibit, De-



fendant's Machine, is a practical duplicate of Complainants' Exhibit, Complainants' Machine, as manufactured under the patent in suit. And the structure embodied in Complainants' Exhibit, Defendant's Sound Record, as compared with Complainants' Exhibit, Complainants' Sound Record, is also the same flat disc sound records made of hard, indestructible material, in the faces of which are impressed a spiral record groove of even depth with lateral undulations, which record groove serve the two-fold purpose of vibrating the stylus to produce the necessary vibrations in the diaphragm of the sound box, and also to automatically propel the stylus in the groove across the surface of the record without a feed screw or other mechanism independent of the record itself.

I have also examined the exhibits introduced in this cause against The Talk-o-Phone Company, namely, Complainants' Exhibit, Complainants' Machine; Complainants' Exhibit, Complainants' Sound Record; Complainants' Exhibit, Defendant's Machine, and Complainants' Exhibit, Defendant's Sound Record, and I find that Complainants' Exhibits, Complainants' Machine and Sound Record are the same as the said Complainants' Exhibits, Complainants' Machine and Sound Record introduced in evidence in said suit against the American Graphophone Company, so decided by the Court of Appeals. Comparing the exhibits in this present suit, I find that Complainants' Exhibits, Defendant's Machine, is essentially the same as Complainants' Exhibit, Complainants' Machine, introduced in evidence in this suit, and also is the same as Complainants' Exhibit, Defendant's Machine, introduced in evidence in said suit against the American Graphophone Company. That is to say, in all of these exhibits, there is a cabinet or casing containing a spring motor, the upright spindle of which projects centrally through the top of the



cabinet and carries a turn-table. From one side of the cabinet there is a projecting arm. In a bearing at the outer end of this arm is mounted a swinging arm capable of swinging horizontally and vertically on a universal joint, while the inner and free end of this swinging arm carries a sound box, with which is connected an amplifying horn supported and carried also by said swinging arm. Complainants' Exhibit, Defendant's Sound Record, is the same structurally as Complainants' Exhibit, Complainants' Sound Record, offered in evidence in this suit, and likewise the same as the Complainants' and Defendant's Sound Record before the Court in said suit against the American Graphophone Company so decided by the Circuit Court of Appeals, that is to say, it is a flat disc sound record of hard material having in its face a spiral groove of even depth with the lateral undulations. This Defendant's Sound Record in the present suit is adapted, as in the other devices, to be carried and rotated by the turn-table, and the stylus of the sound box engaging the spiral groove therein causes lateral vibrations in the diaphragm and these vibrations of the diaphragm set up the sound waves in the sound box and amplifying horn while at the same time the sound box and stylus are automatically propelled across the surface of the record by reason of the record groove itself, and independently of any other means or mechanism.

As there is absolutely no difference between the construction of defendant's machine and sound record and the invention set forth and claimed in Claims 5 and 35 of the patent in suit, as far as the principle of Berliner's invention as to vibrating the diaphragm and propelling the stylus and the sound reproducer by and in accordance with the groove of the sound record across the surface of the record, and without a feed screw or other mechanism, and in view of the fact that defendant's machine and



sound record offered in evidence in this suit do vibrate the stylus and propel it and the sound reproducer across the surface of the record in the patent in suit and as it is done in Complainants' Exhibit, Complainants' Machine, and Complainants' Sound Record in said suit against the American Graphophone Company, so decided by the Court of Appeals, in my opinion, the said Complainants' Exhibit, Defendant's Machine and Sound Record, in this suit contain all the means and instrumentalities called for by Claims 5 and 35 of the patent in suit and constitute an infringement of these claims.

The Complainants' Exhibit, Defendant's Machine and Defendant's Sound Record, are manufactured for use in connection with each other, and are so used and in my opinion are incapable of use in any other connection in a practical manner.

(Sgd.) HARRY COBB KENNEDY.

Sworn and subscribed to before me }  
this 23d day of March, 1906. }

(Sgd.) Alexander Park,

[SEAL]

Notary Public,

Commission expires 2/6/09,

604 Stephen Girard Bldg.,

Philadelphia, Pa.

[Note: For copy of Complainants' Exhibit, Berliner Patent in suit, No. 534543, see *infra*, p. .]



Copy of Decision.

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**[Copy of Decision of Judge Hazel of  
September 28, 1905.]**

[SEAL.]

(Sgd.) Alexander Park,  
Notary Public,  
Commission expires 2/6/09,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.

UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity.

VICTOR TALKING MACHINE COM-  
PANY and United States Gram-  
ophone Company,  
Complainants,

vs.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Defendant.

HORACE PETTIT, of Counsel for Complain-  
ants.

ELISHA K. CAMP, for Defendant.

PHILIP MAURO, C. A. L. MASSIE, of Coun-  
sel.

HAZEL, J.:

The bill is in equity and relates to the infringe-  
ment of Letters Patent No. 534543, issued February  
19, 1895, to Emile Berliner, assignor to complain-



ants, on application filed March 30, 1892, for improvements in a talking machine commonly known as the gramophone. The apparatus to which the improvements relate, is constructed to record and reproduce vocal sounds. The patent has 35 claims, of which Claim 5, for the process, and 35, for construction of the recording and reproducing apparatus, alone, are involved. Such claims read as follows:

5. "The method of reproducing sounds from a record of the same, which consists in vibrating a stylus and propelling the same along the record by and in accordance with the said record, substantially as described.

35. "In a sound reproducing apparatus, consisting of a travelling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record, and free to be vibrated and propelled by the same, substantially as described."

At the date of the invention in suit it was not new to record sound and articulated words and reproduce the same by suitable mechanical agencies. Numerous defences are interposed in the answer, viz.: anticipation; prior use; abandonment and non-patentability. The objection is also urged that the Court is without jurisdiction, on the ground that complainants, before the suit was instituted, agreed in writing to release the defendant from the payment of damages and to grant to it a license to use, sell and manufacture the patented machine provided the patent in suit was held valid by the Court. Such objection, however, which is erroneously sought to be sustained upon the authority of *Root vs. Railroad Co.*, 105 U. S., 180, is without merit. The principle is unassailable that where mere damages are sought to be recovered in an ac-



tion for infringement of a patent, a court of equity will not interfere. But where the bill, alleging infringement of an unexpired patent, demands damages and permanent injunction, equitable relief in a proper case will not be refused. A prior agreement by which the interested parties mutually agree upon terms of settlement on condition that the patent in controversy is sustained by the Court, cannot upon principle and authority deprive a court of its inherent power and jurisdiction (*McMillin vs. St. Louis & Miss. Valley Transp. Co.*, 18 Fed., 260; *Guaranty Co. vs. Green Cove Rd. Co.*, 129 U. S., 137; to the same effect see *Doyle vs. Continental Ins. Co.*, 94 U. S., 535; *Insurance Co. vs. Morse*, 20 Wall, 445). It is insisted on the part of the defendant that the evidence conclusively shows that there was a public use of the invention for more than two years prior to the application for the patent; that the inventor abandoned his right to the claims in suit by a postponement of them, and that in an earlier application for a patent, he described such claims in his specifications without, however, claiming them. The complainants contend that the alleged prior public use was for the purpose of experiment, and that there was no abandonment in fact. To properly understand the defences, it is necessary to consider the state of the art and to briefly indicate the principles of the various talking machines commonly known and mentioned in the record. The references relied upon to anticipate the involved claims are, first, the Franklin Institute lecture by the patentee, on May 16, 1888; second, a publication by him in the *Electrical World*, on November 12, 1887; and, third, the patents to Bell & Tainter, No. 341214, dated May 4, 1886, and to W. Suess, assignor to Emile Berliner, No. 427279, issued May 6, 1890. In the British Patent to Edison, No. 1644, dated April 24, 1878, for recording and reproducing vocal sounds, the air vibrations were recorded by a



system of indentations upon a pliable or yielding material, as, for instance, a thin sheet of metal or tin foil. The foil was ordinarily placed over a grooved substance and received impressions of the voice through the instrumentality of a moveable, inelastic diaphragm, having at its end an indenting point or stylus. In order to effectuate the reproduction of sound vibrations, the point of the stylus was essentially kept in constant contact with the revolving record, cylinder or disc. This was accomplished by a mechanical device which propelled the stylus across the surface of the record. In the graphophone patent, issued to Bell & Tainter, the record was engraved or cut in wax-like or amorphous material. The form of cutting or engraving was in a spiral groove of varying depth, the side of the walls sloping toward the bottom. The stylus, which curved in a downward direction, was kept in the groove by gravity and as the record rotated it was vibrated vertically "in the direction of its length." It is shown by the evidence that the graphophone in one form, which is illustrated in the drawings attached to the patent, required mechanical means to propel the record past the reproducer diaphragm and stationary stylus. In another form a moveable stylus attached to the diaphragm was propelled by an auxiliary device across the record so as to retain the stylus point in constant contact with the vertical undulations. These different forms of talking machines are disclosed by the patents of prior date. The common form of style being adapted to record and reproduce vocal sounds at the instance of the user, and the other to merely reproduce sound vibrations as had previously been recorded in accordance with the process of the patentee.

In the patent to Emile Berliner, No. 564586, issued on July 28, 1896, application filed November 7, 1887, the process of recording and reproducing



sound vibrations differs essentially from the method used in the phonograph and the graphophone. The specification described a process by which the sounds were inscribed upon a layer of non-resisting material; which was afterwards copied in a non-yielding material, from which the sounds were reproduced. The specification says:

"The original record, as well as the copy of the same, is thus obtained as an undulatory line of even depth, as distinguished from the line of varying depth obtained by the ordinary phonograph and graphophone."

It is not disputed that such mode or process was a new and meritorious invention and that it was not merely a patent for the functional effect of the machine in connection with which it was used. The earlier specification does not claim the method nor the details of construction of the claims in controversy; hence it is contended by the defendant, as will presently appear, that there was a surrender or waiver thereof. In the patent in suit two features of the invention are mentioned, one concerning the process or mode of recording sound upon a record, the other as to the construction of the apparatus. Complainants contend, and the proofs show, that the stylus attached to the diaphragm is arranged so as to permit the same to vibrate laterally, and that owing to lateral undulations in the walls of the record groove, a desirable swaying motion is imparted to the reproducer diaphragm. Concededly, the lateral undulations in the record automatically guide or propel the stylus and diaphragm in its course over the disc from the outer circumference toward the center, and the stylus travels in an apparently direct radial path while at the same instant of time it is pulsated or incited by the sound waves. The principle of operation in the Berliner machine is thought to be essentially different from



that of the machine of Bell & Tainter. In the latter, an auxiliary joint or feed screw was necessary, as already stated, to effectuate the required passage of the record over the point of the stylus, or to cause the stylus and reproducer diaphragm to travel across the surface of the record. In complainants' patent, on the other hand, it is shown that the lateral vibrations of the stylus point and the propelling of the same over the surface of the record without mechanical assistance and through the means of the groove alone was the primary object of the inventor. In the Suess Patent is contained a description corresponding to the features of Claim 35, in suit. The primary object of Suess, an employee of Berliner, however, was merely to construct a suitable pivotal support for the diaphragm and stylus, so as to assist such device in its passage across the record. It is expressly stated in the specification of the Suess Patent that the invention relates to improvements in the reproducing apparatus of Berliner, and that the construction and mounting of the stylus form no part of the invention. The improvement of Suess, therefore, is not an anticipation. Defendant insists that the Bell & Tainter specifications fully described the Berliner process and specific combination. Such specification says:

"The invention consists, fourthly, in loosely mounting the reproducing style so that it is free to follow the record." And further: "Preferably the reproducing style, or rather what may be called the 'head' of the reproducing instrument is mounted on an universal point, and the style is pressed against the record by the yielding pressure of a spring or weight."

Stress is placed upon the language quoted; but from what has already been said regarding the Bell & Tainter Patent, it is manifest that the principle



of Berliner's invention rests upon the practicability of propelling the stylus in the groove across the surface of the record without a feed screw or other mechanism. By such adaptation to what is known in the art as a zigzag record (Complainants' Record) certain imperfections in the talking machines were overcome, and sound, when reproduced, was rendered more intelligible. There was, I think, patentable novelty in the method which accomplished the results stated. The broad claims in suit in my judgment cannot be restricted to a record of even depth, such as described in the specification. The essence of such claims would seem to include a sound record, which, when in juxtaposition with a diaphragm and stylus propelled in the manner described, is thereby enabled to successfully accomplish the primal object and purpose of the invention.

The next defences, prior use and abandonment, may be considered together. The proofs show that the patentee used his machine and gratuitously delivered a lecture on relation thereto in the City of Philadelphia on May 16th, 1888, to an audience of about two hundred persons; more than two years before the application in suit, and that prior thereto in the year 1887, he published an article in a periodical, the "Electrical World," relating to his said discovery. He expressly stated in his lecture that the exhibit machine was the hasty result of a new mechanism and the accomplishment should be measured by its future possibilities and not wholly by the demonstration. It is not claimed that there were any sales of the instrument at the time of the exhibition and lecture; indeed, it is conceded that the apparatus was not sold nor used by other persons, until about six years later, when the patent in suit was issued. The mere exhibition of the machine to an assembled audience to hear an explanation of one's invention was not fatal to the patent.



under the authorities (Shaw vs. Cooper, 32 U. S., 292; Egbert vs. Lippman, 104 U. S., 333; Elizabeth vs. Pavement Co., 97 U. S., 126; Eastman vs. Mayor, etc., of City of New York, 134 Fed., 844).. That a complete disclosure was made of the described plan of mounting the reproducer diaphragm and stylus in the specification attached to the application filed November 7th, 1887, is freely admitted. Such disclosures consisted of a machine constructed in accordance with the drawing (Figure 10) of the earlier application. The diaphragm and stylus were mounted or suspended upon a conveyor arrangement having rollers. The inventor did not allow his invention, with his consent, to be embodied by other persons in a completed machine, and no profit or gain, until the patent was granted, was realized as a result of the invention. Moreover, the evidence and circumstances justify the assumption that the exhibition of the apparatus was purely experimental and in no sense a public use within the meaning of the statutes. In Elizabeth vs. Pavement Co., *supra*, the Supreme Court considered the meaning and application of the words public use. In the opinion it is stated:

"But if the inventor allows his machine to be used by other persons generally, either with or without compensation, or if it is, with his consent, put on sale for such use, then it will be in public use and on public sale, within the meaning of the law. \* \* \* Nicholson did not sell it, nor allow others to use it or sell it. He did not let it go beyond his control. He did nothing that indicated any intent to do so. He kept it under his own eyes, and never for a moment abandoned the intent to obtain a patent for it. In this connection it is proper to make another remark. It is not a public knowledge of his



invention that precludes the inventor from obtaining a patent for it, but a public use or sale of it."

This doctrine undoubtedly has application to the facts here. As already appears, the patent in suit was issued upon a later application than Patent No. 564586. Why the broad claims of the former were not made a part of the earlier application and specification does not appear. Defendant broadly contends that the fact of the omission by the patentee to claim the invention in the earlier application, considered in connection with the above mentioned publication in the "Electrical World," and public exhibition, was an abandonment and forfeiture thereof. It is true that the Revised Statutes (S. 4886) require the inventor to point out and distinctly claim the improvement or combination which he claims is his invention or discovery. If he omits so to do, such improvement or combination being apparent on the face thereof, he is presumed to have abandoned the same and to have dedicated to the public that which is not claimed (*Miller vs. Brass Co.*, 104 U. S., 350; *James vs. Campbell*, 104 U. S., 356; *Stirrat vs. Excelsior Mfg. Co.*, 61 Fed., 980; *McBride vs. Kingman*, 97 Fed., 217). But it may be stated as a general rule that "a patent is never invalidated by the fact that the invention claimed in it was described but not claimed in a patent granted subsequently to the making of the application for the patent secondly issued, but before it was granted." This principle as enunciated by Judge Blatchford in *Singer vs. Braunsdorf*, 7 Blatch., 521, is thought to apply. See also *Thomson-Houston Elec. Co. vs. Elmira & Horseheads Ry Co.*, 69 Fed., 257. In any event, it cannot justly be claimed from the facts, that Berliner has done anything to indicate an intention to waive or surrender his discovery. To merely withhold a patent from the public has never been considered an aban-



donment, and the adjudged cases uniformly hold that an inventor may have a patent for an invention described but not claimed by him, in a prior patent to himself (*Graham vs. McCormick*, 11 Fed., 859; *Vermont Farm Machine Co. vs. Marble*, 19 Fed., 307; *Eastern Paper Bag Co. vs. Standard Paper Bag Co.*, 30 Fed., 63). In the latter case the language of the Supreme Court, in *Miller vs Brass Co.*, *James vs. Campbell*, *supra*, was interpreted as applying to re-issues under the statute. It was broadly held that the description of another invention in a prior patent by the same inventor does not forfeit his right to afterward take out a patent for such invention. In this case, the patent on the earlier application, as has been stated, was issued subsequent to the patent in suit. I am unable to perceive how the patentee's failure to claim the invention described in his earlier application can be construed as an abandonment thereof. It is true an abandonment of an invention by a patentee to the public is a question of fact and may be established by the patentee's intention to abandon, or by inferences consistent therewith (*Rifle and Cartridge Co. vs. Arms Co.*, 118 U. S., 22; *Planing Machine Co. vs. Keith*, 101 U. S., 479). The burden, however, is upon the defendant to show that the invention was abandoned (*Wyeth vs. Stone*, Fed. Cases, No. 18, 107). Nor, indeed, should evidence of abandonment rest upon doubtful or controverted inferences. The publication in the "Electrical World" is not entitled to the probative weight claimed by the defendant. The rule is that the prior publication, in order to anticipate, must fully and clearly describe the invention so as to enable the skilled in the art to completely understand it and reproduce the apparatus without assistance from the patentee (*Badische Anilin & Soda Fabrik vs. Kalls*, 94 Fed., 163; *Cohn vs. Corset Co.*, 93 U. S., 366). The prior publication, based upon the article mentioned, is



not within the rule stated. The elicited facts are thought to be foreign to sustaining the asserted defences, and hence, infringement not being controverted, complainants are entitled to a decree adjudging the validity of the patent and its infringement and for an injunction against the use of the machines or devices made in violation of Claims 5 and 35 of the patent in suit with costs.

UNITED STATES CIRCUIT COURT OF  
APPEALS,

SECOND CIRCUIT.

Before—LACOMBE, TOWNSEND and CONE.

Circuit Judges.

VICTOR TALKING MACHINE COM-  
PANY and another,  
Complainants-Appellees,

vs.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Defendant-Appellant.

This cause comes here upon appeal from a decree of the Circuit Court, Southern District of New York, sustaining the validity (and finding infringement) of U. S. Letters Patent 534543 granted February 19, 1895, to Emile Berliner for the "Gramophone." The opinion in the Circuit Court is reported in F. R.

*Per Curiam.*

In affirming this decree we do not find it necessary to add anything to the careful and exhaustive



discussion of the issues which will be found in Judge Hazel's opinion with one single exception. In disposing of the defence of prior public use based upon the lecture and exhibition before the Franklin Institute, the Circuit Court, apparently relied mainly upon the proposition that what took place there was not a public use, but rather an experimental one. Without discussing the questions thus raised or expressing any definite opinion either way, we prefer to dispose of the alleged prior public use by means of the application of Berliner which was filed six months prior to the Franklin Institute lecture, and which eventuated in Patent 564586, issued subsequent to the patent in suit. The specifications in that application (for 564586) were full enough to warrant the making of the claims here in controversy (5 and 35); at any time the application might have been amended by adding such claims, and in our opinion it is immaterial that instead of thus amending it, he took the broader claims on another application filed while the first was pending. The second may fairly be considered a continuation of the first, and thus Berliner's application antedates the public use, and the facts will not sustain the contention that he abandoned his invention here in suit.

The decree is affirmed.

A true copy.

[SEAL.]

(Signed) WM. PARKIN,  
Clerk.



Copy of Decision.

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Circuit Court of the United States  
Southern District of New York.  
In Equity No. ~~8859~~ 8992.  
Suit on the Berliner Gramophone  
Patent, No. 534543.

Victor Talking Machine Co., et al.

*Leeds & Catlin*  
vs.  
~~The Talk o Phone Co.~~

Complainants' Exhibit, *Per Curiam*.  
(signed) ALEXANDER PARK,

[SEAL.]

Notary Public,

Commission Expires Feb. 6, 1909.

604 Stephen Girard Bldg.,  
Philadelphia.

(Filed March 27-1906)



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

LEEDS & CATLIN COMPANY.

In Equity No.  
8797.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

TALK-O-PHONE COMPANY.

In Equity No.  
8859.

State and County of New York, ss.:

Louis Hicks, being duly sworn, says: that he is solicitor and counsel for the Leeds & Catlin Company and for the Talk-o-Phone Company, the defendants above named. These two suits are brought upon Letters Patent of the United States No. 534543, dated February 19, 1895, to Emile Berliner. The suit against the Leeds & Catlin Company was brought in July, 1904, and the defendant duly appeared on the August, 1904 rule day. The suit against the Talk-o-Phone Company was brought at about the end of September, 1904, and the defendant appeared on the November, - 1904, rule day. On September 30, 1904, in the suit against the Leeds & Catlin Company, and on December 19, 1904, in the suit against the Talk-o-Phone Company, demurrers were filed to the bills. As explained in the annexed correspondence between Horace Pettit, Esq., and



me as counsel for the respective parties to these suits by reason of complainant's neglect, the demurrers were not reached for argument until October 23, 1905. The demurrers having been overruled prior to November 8, 1905, complainant delayed entering the orders overruling the demurrers and directing defendants to answer until requested so to do by deponent on or about November 22, 1905. Thereupon defendants filed their answers on December 21, 1905, but complainant neglected to file its replications on the January, 1906 rule day, and unreasonably delayed filing its replications until the February, 1906 rule day. Hence, these suits became at issue February 5, 1906, but complainants have taken no testimony whatever, although nearly three months have elapsed since the January, 1906 rule day. As appears from deponent's letters to Mr. Pettit, defendants vigorously protested against this delay. During the time of the delay complainant brought its suit against the American Graphophone Company to final hearing, secured a decision from Judge Hazel and an affirmance thereof by the Circuit Court of Appeals. As appears from my second letter to Mr. Pettit, dated November 22, 1905, I had repeatedly informed Mr. Pettit that I had discovered evidence which would without question prove the invalidity of that patent and I requested Mr. Pettit to proceed at once with the prosecution of its case against the Talk-o-Phone Company, in order that the question of the invalidity and nullity of the patent might, at an early date, be passed upon by the Court.

I was present at the argument on final hearing in the suit of the Victor Talking Machine Company *et al* vs. the American Graphophone Company on Berliner Patent No. 534543, on June 5 and 6, 1905, before Judge Hazel, and on defend-



ant's motion for rehearing before Judge Hazel on October 27, 1905, and also on the argument of the appeal in that suit in the Circuit Court of Appeals, on January 17 and 18, 1906. I have also examined the record and the briefs filed and used in the Circuit Court and the Circuit Court of Appeals in that suit. It appears that the defenses made were the following:

1. Anticipation by Bell & Tainter Patent No. 341-214.

2. Prior public use for more than two years before the application, based on Berliner's lecture delivered May 16, 1888, before the Franklin Institute.

3. Abandonment, based on the article in the Electrical World for November 12, 1887.

4. Abandonment by acquiescence in Suess' United States Patent No. 427279.

5. That the patent in suit No. 534543 is not based on Berliner's invention, the construction shown being that shown in the Suess patent, and not that shown in Berliner's application filed November 7, 1887, for Patent No. 564586.

6. Claim 5 is not for a patentable method.

It appears from the record in that suit that the bill was filed January 4, 1904; defendant appeared February 1, 1904; the answer was filed March 15, 1904, and the replication was not filed until August 12, 1904. A motion to apportion time was made and an order apportioning time to take testimony was filed February 7, 1905.

Complainants' *prima facie* case consisted of the bill of complaint; seven agreements, dated September 2, 1895 (2), October 4, 1895, October 15, 1895, November 1, 1895, September 28, 1901, and October



5, 1901, in regard to the title of the complainants to the patent in suit, uncertified copies of which were stipulated in evidence without proof; the agreement of December 8, 1903 between the Victor Talking Machine Company and the American Graphophone Company, consent decrees in favor of the Victor Company, *et al.*, vs. Lit Brothers and against the Universal Talking Machine Company, *et al.*, on Berliner Patent No. 548623, recently held by Judge Hazel not infringed in a suit against the American Graphophone Company at final hearing; the file wrapper and contents on Berliner Patent No. 564586; Patent Office copies of the drawings of said Patent No. 564586; Berliner Patent in suit No. 534543; Edison Patents Nos. 200521 and 227-679; stipulations admitting incorporation of complainants and defendant; the use of uncertified copies of the title papers mentioned and the use of Patent Office copies of patents; Complainants' Exhibits of Defendant's Machine and record, and stipulation that the same were made and sold subsequent to the patent and prior to the suit; the deposition of Joseph Lyons; and the deposition of Charles K. Haddon.

In rebuttal complainant took the deposition of Emile Berliner and the deposition of Rudolph M. Hunter and offered in evidence "Complainants' Exhibit Berliner Model" and a certified copy of Berliner Patent No. 564586.

Defendant's case consisted of the answer; deposition of Shelton T. Cameron; deposition of Emile Berliner; Letters Patent of the United States Nos. 341214 and 341288, to Bell & Tainter; No. 427279 to Suess; No. 564586 to Berliner; No. 688739 to Jones; No. 562604 to Amet; English Patent No. 1644, of 1878 to Edison; French Patent No. 205-491 to Suess; article on Berliner's Gramophone in the Electrical World for November 12, 1887; pa-



per read May 16, 1888 by Emile Berliner on the Gramophone before the Franklin Institute; file wrapper and contents of patent in suit No. 534543; copies of affidavits of E. R. Johnson, verified December 14, 1900 and January 5, 1903, and stipulation as to translation of said Suess French patent.

Said Suess French patent is identical in all respects including the specification, drawings and claims with U. S. Letters Patent to Suess No. 427-279.

Deponent introduces in evidence in each of the above entitled suits, and refers thereto and makes the same a part of this affidavit, a copy of the agreement of December 8, 1903, between the Victor Talking Machine Company and the American Graphophone Company; Berliner Patent No. 564-586; copies of the depositions of Emile Berliner taken by the defendant and by the complainant in rebuttal in said suit; Letters Patent of the United States No. 341214 and 341288 to Bell & Tainter; No. 427279 to Suess; English Patent No. 1644 of 1878 to Edison; a copy of the article on Berliner's Gramophone in the Electrical World for November 12, 1887; a copy of the paper read by Emile Berliner on the Gramophone before the Franklin Institute on May 16, 1888; a certified copy of the file wrapper and contents of the patent in suit No. 534543. For the drawings forming part of the article in the Electrical World for November 12, 1887, and of the paper read by Mr. Berliner on May 16, 1888, I beg leave to refer to the Exhibits filed in said suit between the Victor Company, *et al.*, and the American Graphophone Company, and annex hereto typewritten copies of the text or printed matter thereof.

As new matter, I offer in evidence on behalf of each defendant in the two above entitled suits a copy hereto annexed of the correspondence between complainants' counsel, Mr. Pettit, and me; the affi-



dayit of T. Commerford Martin, verified November 10, 1905; the affidavit of Joseph Wetzler, verified November 9, 1905; a copy of an affidavit verified by Louis Hicks June 8, 1905, and two proposed orders based upon said affidavit, together with a letter dated June 10, 1905, by Horace Pettit, and a letter dated June 12, 1905, by Louis Hicks to Judge Hazel, with reference to said two proposed orders, neither of which was ever signed so far as deponent is informed; also an article in the Electrical World for August 18, 1888, entitled "The Improved Gramophone."

In addition, as new matter I offer in evidence certified copies of letters patent of France to Emile Berliner, No. 186827, of November 8, 1887; No. 190602, of May 15, 1888, and No. 207090, of July 19, 1890, together with correct, true and full translations thereof hereto annexed, which translations I have personally made, being acquainted with the French language.

I further offer in evidence as new matter, certified copies of German Letters Patent to Emile Berliner No. 45048, of November 8, 1887; No. 47099, of May 16, 1888, and No. 53622, of November 20, 1889, together with correct, true and full translations thereof hereto annexed, which translations I have personally prepared, being acquainted with the German language.

I also offer in evidence as new matter a certified copy of Canadian Patent No. 41901, of February 11, 1893, to Emile Berliner, a certified copy of the assignment thereof from W. Suess to E. Berliner, and a certified copy of the petition, oath, powers of attorney, receipt, correspondence and wrapper relating to the application for said Canadian Patent.

I annex hereto copies of the material parts of the Law of France, of Germany, Great Britain and Canada, in force at the time the aforesaid letters patent of France, Germany and Canada were ap-



plied for and granted, and at the time English Letters Patent No. 15232 of 1887, No. 7204 of 1888, to Emile Berliner, which are herewith offered in evidence, were applied for and granted.

It appears from Vols. 8 and 9 of the Official Journal, published at the Patent Office, Sale Branch, London, England, for July, 1887, to June, 1888, that the application for English Patent No. 15232, of November 8, 1887, was filed November 8, 1887; that the complete specification was accepted December 10, 1887, and published during the week ending December 31, 1887, at a price of 11d. per copy; that the patent thereon was sealed February 17, 1888. It furthermore appears from Vols. 9 and 10 of the same journal for January, 1888, to December, 1888, that the application for English Letters Patent No. 7204, of May 15, 1888, was filed May 15, 1888; that the complete specification was accepted June 16, 1888, and published during the week ending July 7, 1888, at a price of 6d. per copy; and that the patent thereon was sealed August 24, 1888.

I have for the past ten years been actively engaged in the practice of patent law, and during the greater part of that time I have devoted my attention largely to patents and litigation relating to talking machines. The patent in suit, No. 534543, to Berliner states that "one feature of my invention has reference to improvements in the method of recording sound by tracing upon a fatty film, etc.; while the other features of my invention have reference to the construction of the details of both the recorder and the reproducer of the gramophone. Each of these features of improvement are designed to overcome certain difficulties, and to avoid certain imperfections heretofore met with in the operation of the gramophone" (p. 1, lines 17-31). On page 3, beginning at line 3 and continuing down to line 109, Berliner described those features of his invention which have reference to the recorder or



recording sound-box. On page 5, beginning at line 34 and continuing down to line 102, Berliner describes those features of his invention which have reference to the reproducer or reproducing sound-box. The recorder consists of a diaphragm mounted in a casing, of a lever or spring constituting or carrying a stylus, the lever being composed of two parts joined or placed at right angles, the one to the other, and of means for connecting the lever or spring with the diaphragm, and of regulating the tension between the diaphragm and spring. The recording stylus is normally curved, but is unbent and becomes straight when adjusted upon the record tablet preparatory to making a record. One end of the spring or lever is made fast to the casing holding the diaphragm and the other end is free to vibrate. For the purpose of dampening the individual vibrations of the lever carrying the stylus, one or two bands of soft rubber are slipped over the broad portion of the stylus. The lever and stylus may extend across the diaphragm upon a line constituting a chord but in the arrangement shown in Figure 4 the adjustment can be such that they may extend across the diaphragm upon a line which would constitute a diameter of the circle of the diaphragm. This eccentricity of the lever and recording stylus is no essential part of Berliner's recorder or recording sound-box, but, as will hereafter more clearly appear, is a mere modification or improvement thereon, which is claimed in claims separate and distinct from Claims 6, 7, 8, 9, 10 and 16, for example, wherein the main and principal features of the recorder are claimed without reference to the eccentricity referred to.

The reproducer or reproducing sound-box consists of a diaphragm mounted in a frame or casing, of a leaf spring similar to the leaf spring of the recorder, and which likewise faces with its flat side the face of the diaphragm up to a point beyond the



center of the latter, and is then turned or twisted at right angles and crosses the casing edgewise (p. 5, lines 43-47). The lever or leaf spring of the reproducer carries at its free end the reproducing stylus, attached in the manner shown and described. One end of the leaf spring or lever of the reproducer is secured to the casing and the other end is free to vibrate, and the leaf spring or lever is said to be elastic in two directions at right angles to each other, by reason of the right angular twists given to the leaf spring at its middle (p. 5, lines 51-52). At the point where the leaf spring passes over the center of the diaphragm it is connected with the diaphragm and in such manner that the tension between the leaf spring and the diaphragm can be regulated (p. 5, lines 61-71). In order to dampen the individual vibrations of the spring, as in the case of the spring of the recorder, a piece of soft rubber may be used to embrace the end of the spring (p. 5, lines 59-61). In order to reduce the volume of sound, one or more perforated and exchangeable diaphragms may be placed in the neck or tube leading from the diaphragm (p. 5, lines 90-102).

That part of Berliner's invention relating to his recorder is illustrated in Figures 4 and 5, and that part relating to his reproducer or reproducing sound-box is illustrated in Figures 6 and 7. Reference to Figure 1 shows that in the recording gramophone shown in Figure 1, the improvement in the details of the recorder or the recording sound-box are illustrated, and the recording stylus is a leaf spring consisting of two parts at right angles one to the other, connected with the center of the diaphragm and having a stylus which is normally curved but which has become straight when brought into adjustment with the record tablet. Reference to Figure 3, showing the reproducing apparatus as a whole shows that Berliner's improvements in the



details of the reproducer or reproducing sound box have been incorporated in Figure 3 where the reproducing sound-box consists of the diaphragm and the leaf spring or lever consisting of a spring bent at about the middle so that the two parts are at right angles the one to the other, the spring being connected to the center of the diaphragm and at one end being attached to the casing, and at the other end being free to vibrate and carrying at the free end the reproducing stylus affixed in the manner shown and described. Claims 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34 and 35 claim in one form or another Berliner's invention consisting of improvements in the details of his reproducer or reproducing sound-box.

Referring to German Patent No. 53622, of November 20, 1889, and to the annexed translation thereof, it appears that Berliner by this patent patented in Germany that part of his invention set forth in Patent No. 534543, constituting his improvements in details of the reproducer. The drawing of the German patent is substantially identical with Figures 6 and 7 of the patent in suit No. 534543. Reference to the specifications of the two patents is hardly necessary to make this appear more clearly than it does from a comparison of the drawings alone. However, referring to the translation hereto annexed of this German patent, it appears that there are described the same diaphragm mounted in a frame or casing, the same leaf spring fastened at one end and free to vibrate at the other end and bent somewhere about the middle at right angles, so that the fastened part extends with its flat part parallel to the diaphragm while the free end of the spring stands with the principal face perpendicular to the diaphragm. The spring and the diaphragm are likewise connected at the center of the diaphragm as in the United States patent, and means for adjusting the tension between the spring and the diaphragm are likewise provided.



The reproducing stylus carried by the free end of the spring is secured in the same manner as in the United States patent. And finally the function and mode of operation of the reproducer of the German patent and the reproducer of the United States patent are identical, and the two patents disclose and claim the one and the same invention.

Referring now to Berliner French Patent No. 207090, of July 19, 1890, and to the annexed translation thereof, it appears that by this patent Berliner patented in France not only the features of his invention having reference to the construction of the details of his reproducer or reproducing sound box, but also the features having reference to the construction of the details of his recorder or recording sound-box. Figures 6 and 7 of the United States Patent No. 534543 show the identical reproducer shown in Figures 3 and 4 of the French patent and Figures 4 and 5 of the United States patent show the same recorder as that shown in Figures 1 and 2 of the French patent, the only difference being substantially in the detail, that in the United States patent the lever and stylus are eccentric, while in the French patent the lever and stylus of the recorder are along the line of a diameter. The essential features of the two recorders are identical, and the invention of the French patent is the principal invention of the United States patent as regards the recorder as well as the reproducer. Referring to the annexed translation and drawings of the French patent, it appears that in the reproducer there is the same diaphragm in the same casing; the same spring or lever composed of two parts placed at right angles the one to the other, or bent at right angles, the same rings of rubber to dampen the individual vibrations of the springs, the same connection between the spring and the center of the diaphragm, like means for regulating the tension between the



spring and the diaphragm, the same means for attaching the reproducing stylus at the end of the spring, the same perforated diaphragms in the neck or tube of the reproducer (Figure 3, D), to render the tone more clear, and that the reproducer of the United States and of the French patent operate according to the same principle, perform the same function, have the same details of construction, and are embodiments of one and the same invention. With reference to the recorder shown in the French patent, we have the same diaphragm in the same casing or frame, the same spring or lever composed of two parts the one at right angles to the other (and here it will be noticed that in the reproducer of the United States and of the French patent, the spring is bent or twisted so as to make the parts at right angles, while the spring or lever of the recorders are composed of two parts joined together so as to be at right angles the one to the other), the same rings of rubber about the stylus or spring of the recorder, similar connection of the spring to the center of the diaphragm, and similar means for regulating the tension between the spring and the diaphragm, the same stylus curved in normal position and unbent so as to become straight when brought in contact with the record tablet. In the recorder of the French patent as well as in the reproducer, there is the same fastening of one end of the spring to the casing of the diaphragm and the same freedom of vibration of the other end of the spring so that the recorder of the United States and French patents embodying one and the same invention, are constructed on the same principle, perform the same function or mode of operation, and are made up of the same details of construction. The principal invention of the recorder of the United States patent is found in the French



patent, and the principal invention of the French patent is found in the United States patent and claimed in each, although, as appears from the French Patent Law hereto annexed, claims of a French patent form no essential part of the patent, the requirement being that there be a specification of the invention forming the subject of the patent applied for.

Referring to letters Patent of Canada, No. 41901, of February 11, 1893, to Emile Berliner, assignee of Werner Suess, for improvements in gramophones, it appears that the drawings and description thereof are substantially identical with the description and drawings of the United States Patent No. 427279 of May 6, 1890, to Emile Berliner, assignee of Werner Suess, for improvements in gramophones. The claims of the two patents are, however, radically different. The United States patent sets forth five claims, each one of which except Claim 4, is for a combination, comprising in addition to other elements, a freely swinging support frame, or, as Judge Hazel puts it in his opinion in the suit against the American Graphophone Company on Berliner Patent No. 534543, "a suitable pivotal support," and a weight adjustable on said frame to counterbalance the reproducer mechanism; while Claim 4 is for a combination comprising the freely swinging supporting frame and a system of links, in addition to other elements. It, therefore, appears that the claims of the United States patent are exceedingly narrow, and Judge Hazel held that the "improvement of Suess, therefore, is not an anticipation," saying:

"In the Suess patent is contained a description corresponding to the features of Claim 35 in suit. The primary object of Suess, an employee of Berliner however, was merely to construct a suitable pivotal



support for the diaphragm and stylus, so as to assist such device in its passage across the record. It is expressly stated in the specification of the Suess patent, that the invention relates to improvements in the reproducing apparatus of Berliner, and that the construction and mounting of the stylus form no part of the invention. The improvement of Suess, therefore, is not an anticipation."

In the record before Judge Hazel, letters patent of the United States No. 372786 of November 8, 1887, and No. 382790 of May 15, 1888, both granted to Emile Berliner, were not in evidence, and these patents are the ones mentioned in the Suess Patent No. 427279 (P. ls. 8-14), as the ones setting forth Berliner's "reproducing apparatus adapted for use in the method for recording and reproducing sounds" for improvements upon which Suess obtained his patent. Said Letters Patent Nos. 372-786 and 382790 to Berliner are herewith offered in evidence, and an examination of those two patents shows that Suess' invention was an original departure from the reproducing apparatus set forth in said Berliner patents. Had the said two Berliner patents been in evidence, Judge Hazel would have seen how marked was the improvement which Suess made upon Berliner's reproducing apparatus. The construction and mounting of the stylus, which, as Judge Hazel states, Suess declared to be "no part of the present invention" (p. 2, ls. 33-34), relate to the construction of the reproducer or reproducing sound-box merely. I have secured a certified copy of the application of Suess, assignor to Berliner, for Letters Patent No. 427279, and of the file-wrapper and contents of said patent, and it appears therefrom that the application was allowed as filed



without any amendment or correspondence whatever relating thereto. I concluded, and from correspondence had with the Patent Office, in regard thereto, I allege upon information and belief that a previous application had been made by Suess and abandoned, and that the subsequent application upon which the patent was issued was then made. I have, however, been unable to obtain a copy of the abandoned application from the Patent Office, the same or any information thereof having been refused.

Referring now to the claims of the Canadian patent, they are thirteen in number, and obviously the Canadian Patent No. 41901 covers broadly the invention set forth in Claims 5 and 35 of the Berliner Patent in suit, No. 534543. Special reference is made to Claims 11, 12 and 13. A comparison of Claim 11 with the other claims of the patent shows that Suess claimed broadly the alleged invention of Berliner Patent No. 534543. As Judge Hazel said that "in the Suess patent is contained a description corresponding to the features of Claim 35 in suit," and as the drawings and specifications of the Suess United States and Canadian patents are substantially identical, it is unnecessary to point out further that the Suess Canadian patent discloses the alleged invention of Claims 5 and 35 of the Berliner Patent in suit No. 534543. Hence, Claims 5 and 35 are limited to the special form of reproducing sound-box and stylus described in Patent No. 534543, and claimed therein and described in the French and German Berliner patents above referred to. On page 3 of the Canadian patent Suess says:

"The stylus engaging with its point the record groove, is controlled by the walls of the latter, and, as will be hereinafter more fully shown, I rely upon this control of the



stylus by the walls of the record groove for the movement of the stylus across the face of the disc, there being no positive feeding mechanism for thus moving the stylus."

Referring to English Letters Patent No. 15232, of 1887, and comparing the description, drawings and claims thereof with letters patent of the United States No. 564586, to Berliner, granted July 28, 1896, but applied for November 7, 1887, and stating on its face that it was patented in England on November 8, 1887, by said English Letters Patent No. 15232 of that date, it appears that the two patents are for one and the same invention, except that the English patent, in addition to covering the matter of the United States patent, also covers the matter of Berliner's early United States Patent No. 372786, of November 8, 1887. This is too clear to require further discussion. It may be remarked in passing, however, that Claim 9 of the English patent is substantially identical with Claim 8 of the United States patent; that Claim 12 of the English patent is the same as Claim 9 of the United States patent; that Claim 13 of the English patent is the same as Claim 10 of the United States patent; that Claim 14 of the English patent is the same as Claim 13 of the United States patent, etc. The two patents, therefore, unquestionably cover the same invention.

In the United States Patent No. 564586, Berliner first describes the drawings showing his apparatus, from page 2, line 7, to page 3, line 54. He then describes the deposition of a suitable layer of ink upon the tablet and the making thereon of a phonautographic record by the recording machine and the copying of that record by photo-engraving, from page 3, line 55, to page 4, line 45. He then describes the centering of the copied record upon the metal disc, from page 4, line 46, to page 4, line 80. Berliner then states that "the stylus is then ad-



justed with its point in engagement with the outer end of the record groove, and the weight, 26, is allowed to descend. It will now be clear that the stylus will be forced possibly to follow the undulations of the record, and that the diaphragm vibrating under the stylus will emit the same sounds which produced the original record, which sounds can be distinctly heard at the ear-piece 34.

"Both the process and the apparatus thus far described may be modified in various ways without departing from the main features of my invention. So, for instance, I can dispense with the centering device and can rotate the record upon a stationary axis, if the diaphragm with its attached stylus is mounted in a manner to make it follow the spiral record. An arrangement of this character is shown in Fig. 10. The reproducing disc 54 is in this case mounted as hereinbefore described, but without regard to the centering device. The support 7' may be fixed in position so that the bevel-gear 9, mounted upon the same in the manner described with reference to Fig. 3, will turn without progressive motion. Bevel-gear 9 and with it the reproducing-disc 54, are rotated by a bevel-gear 14' upon a shaft 6', to which power is applied by a weight, as shown, or in any other suitable manner. The diaphragm-casing 31 is secured to a small truck 55 upon rails 56 arranged vertically above and parallel with a diameter of the reproducing-disc, and at such height above the same that the stylus 29 will be in engagement with the undulatory grooves of even depth which represent the record of sounds.

"The listener applies his ear to the ear-piece, and when the shaft 6' is rotated the stylus and diaphragm will be forced to vibrate, as in the apparatus shown in Fig. 1, but will at the same time move with the truck 55 across the face of the disc 54. A tolerably good reproduction may also be obtained by simply holding one end of a reed be-



tween the teeth and the other pointed end of the same in engagement with the record-grooves while the disc is rotated."

It will be noticed that Berliner states that the apparatus or arrangement shown in Figure 10 is a mere modification of his process and apparatus "without departing from the main features of my invention." So in referring to Figure 10, on page 2, line 22, Berliner says: "Figure 10 is a sectional elevation of a modified form of my reproducing apparatus." Clearly, according to Berliner's statements, the modified arrangement shown in Figure 10 embodies the main features of his invention disclosed in the entire specification. This view was also taken by the Circuit Court of Appeals in the opinion affirming the decision of Judge Hazel in the suit of the Victor Company, *et al.*, vs. the American Graphophone Company. In that opinion the Circuit Court of Appeals said:

"The specifications in that application (for 564586) were full enough to warrant the making of the claims here in controversy (5 and 35); at any time the application might have been amended by adding such claims, and in our opinion it is immaterial that instead of thus amending it he took the broader claims on another application filed while the first was pending. The second may fairly be considered a continuation of the first."

We have, therefore, in the United States two patents protecting the features of Berliner's invention set forth in his application for No. 564586, to wit: No. 534543 as to Claims 5 and 35 and the various claims of No. 564586.

It should be noticed that in Claims 17, 18, 19, 20, 21 and 22 of Patent No. 534543, Berliner mentions a "rotary tablet," while in Claim 35 Berliner speaks of a "traveling tablet." In the claims of



United States Patent No. 564586 (Claims 1, 2, 3, 4, 7, 8 and 13, for example), and in the claims of English Patent No. 15232, of 1887 (Claims 1, 4, 5 and 9, for example), the word "traveling" denotes a tablet or support which not only rotates, but also has a progressive movement of its center. Thus Claim 35, which the Circuit Court of Appeals says is a broad claim for the invention set forth in No. 564586, and therefore in said English Patent No. 15232 of 1887, follows the language of No. 564586 in the use of the word "traveling" and the expression "traveling tablet."

Claim 8 of No. 564586 ~~and~~ reads as follows:

"8. In a gramophone, the combination of a sound-receiving sonorous body; with a pivoted stylus controlled by and controlling the same, and a support adapted to carry a phonautographic recording-surface, or a copy of such record in solid resisting material, travelling in the plane of vibration of the point of the stylus; substantially as described."

Claim 9 of English Patent No. 15232 of 1887, reads as follows:

"9. In a gramophone, the combination of a sound receiving diaphragm or other sonorous body; with a pivoted stylus controlled by a diaphragm, and controlling the same, and a support adapted to carry a phonautographic record sheet or a copy of such record, in solid resisting material, traveling in the plane of vibration of the point of the stylus, substantially as described."

Claim 35 in suit of Patent No. 534543 reads as follows:

"35. In a sound reproducing apparatus



consisting of a traveling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described."

Obviously the combination shown in the last Claim, 35, is but a mere modification of the combination shown in the two previous claims above set forth, 8 and 9. And that is what Berliner himself states and what the Circuit Court of Appeals has also held. Claims 5 and 35 of Patent No. 534543 therefore, protect the same invention as English Patent No. 15232 of 1887.

Referring to German Patent No. 45048 of November 8, 1887 and to the annexed translation thereof, and French Patent No. 186827 of November 8, 1887 and to the annexed translation thereof, it appears upon the face of these patents that they are for the same invention as English Patent No. 15232 of 1887, the French patent including the claims, being a mere translation thereof, and the German patent being for the same invention in slightly different language. The drawings of the English, French and German patents being all identical.

I have for several years past made a careful study of talking machines, of patents relating thereto, and have frequently been called upon to give opinions with reference to patents relating to talking machines and to take a very active part in litigation based upon such patents. I have discussed the foregoing patents and the subject matter thereof with Mr. Edward F. Leeds, of Leeds & Catlin Company, and Mr. Harry Eusign of the Talk-o-Phone Company, experts in the talking machine art, and I believe that the conclusions above stated by me are correct, together with the reasons given therefor.



The Talk-o-Phone with the mechanical feed device (Exhibit A) herewith presented to the Court, was, in its general form, first suggested by me. My suggestion was based especially upon English Patent No. 1644, of 1878 to Edison, and especially on Figures 1-10 thereof and upon the other early letters patent herewith offered in evidence, showing the positive feeding mechanism for moving a reproducing stylus or other like instrument across the face of the record. As stated by Suess in his United States and Canadian patents in the apparatus shown by him there is "no positive feeding mechanism for thus moving the stylus across the record." Complainants' counsel, Mr. Pettit, under date of March 10, 1906, as appears from his annexed letter to Rogers Manufacturing Company, claims that the mechanical feed device can have no useful function to perform and is a mere attempt to evade the Berliner patent. Obviously Mr. Pettit's contention is contrary to the fact, and is made for the purpose of injuring the Talk-o-Phone Company. I annex a copy of the description forming a part of the application filed on behalf of the Talk-o-Phone Company for letters patent covering the special features of its talking machine with the mechanical feed device. The first action of the Patent Office thereon, dated March 8, 1906, shows that no objection is made by the Patent Office to Claims 8, 9, 10 and 16, covering the mechanical feed device of the Talk-o-Phone Company's Talk-o-Phone manufactured in accordance with the invention described in said application, and that only a formal objection has been made to Claim 17 for the same device. The claims mentioned, will, therefore be allowed and upon further action in the proceedings it is believed that all or nearly all of the remaining claims will be allowed.

I have been familiar with the product of the



Talk-o-Phone Company since the time of its incorporation. The Talk-o-Phone Company is now and has been engaged in the manufacture and sale of talking machines and is not and has not been engaged in the manufacture of sound records.

Referring to the Talk-o-Phone with the mechanical feed device, it appears from an inspection of Exhibit A, as well as from the specification of the application for a patent therefor hereto annexed, that the walls of the record groove cannot move the stylus across the face of the record and that the movement of the stylus across the face of the record groove is performed by the mechanical feed device.

LOUIS HICKS.

Subscribed and sworn to before me }  
this 5th day of April, 1906. }

T. P. Dalton,  
[NOTARY'S SEAL] Notary Public,  
Kings Co.

Cert. filed in New York Co.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

LEEDS & CATLIN COMPANY.

In Equity No.  
8797.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

TALK-O-PHONE COMPANY.

In Equity No.  
8859.

State and County of New York, ss.:

Harry Ensign, being duly sworn, says: I reside at Toledo, Ohio, and am the Superintendent of the Talk-o-Phone Company, defendant above named, and have entire charge of the manufacture of talk-o-phones in the factory of the Talk-o-Phone Company at Toledo, Ohio, where all the talking machines of that Company are and have been made. The Talk-o-Phone Company is an Ohio corporation having authorized capital stock in its certificate of incorporation of Five hundred thousand dollars (\$500,000), of which Four hundred thousand dollars (\$400,000) have been issued, and the Talk-o-Phone Company has already increased the amount of its capital stock authorized to \$1,000,000 and the amount of the issue thereof. Several hundred thousand dollars have been invested by the Talk-o-Phone Company in its factory and plant at Toledo, Ohio, and the attacks made by the



complainant herein, together with their misleading circulars and statements to the trade, and their delay in bringing this suit to a hearing have seriously injured the business of the Talk-o-Phone Company. For the past three years I have been engaged in the manufacture of talking machines, principally for the Talk-o-Phone Company, and I am familiar with the principle of construction and the mode of operation of all parts of talking machines and particularly disc talking machines, such as the Talk-o-Phones. I am also familiar with the construction, principle and mode of operation of the disc talking machines made and sold by complainant, the Victor Talking Machine Company, and by the American Graphophone Company. I also understand and am familiar with the talking machines described in letters patent of the United States to Berliner, Nos. 534543, 564586, 372786 and 382790, and in Berliner's corresponding English patents, No. 15232 of 1887 and No. 7204 of 1888; and with Berliner's corresponding French Patents No. 186827 of November 8, 1887, No. 190602 of May 15, 1888 and No. 207090 of July 19, 1890; also with Berliner's corresponding German patents Nos. 45048, of November 8, 1887, 47099, of May 16, 1888 and 53622, of November 20, 1889. I am also familiar with the Berliner-Suess Canadian Patent No. 41901 of February 11, 1893, and with other patents to various inventors for talking machines. I have given special attention in the course of my business to the manufacture of sound boxes consisting of a diaphragm with a recording or reproducing stylus connected therewith for use in disc talking machines.

Referring to the patent in suit to Berliner, No. 534543, Berliner states (p. 1, ls. 17-31) that "one feature of my invention has reference to improvements in the method of recording sound by tracing upon a fatty film, etc.; while the other features of my



invention have reference to the construction of the details of both the recorder and the reproducer of the gramophone. Each of these features of improvement are designed to overcome certain difficulties, and to avoid certain imperfections heretofore met with in the operation of the gramophone." By the "recorder" and "reproducer" are meant the recording and the reproducing sound boxes shown in Figures 4, 5, 6 and 7 of the drawings of that patent. Berliner describes his recorder on page 3, lines 3-109, and his reproducer on page 5, lines 34-102.

The recorder described in the patent consists of a diaphragm mounted in a casing connected with the lever carrying a recording stylus and extending over the face of the diaphragm. The lever and stylus consists of two parts joined together so that the parts are at right angles, the face of the one to the face of the other. In normal position the stylus is curved, but is unbent and becomes straight when adjusted in position preparatory for the making of a record. Bands of rubber or the like surround the stylus to dampen the individual vibrations thereof. One end of the lever and stylus is fixed or fastened to the casing, while the other end or point of the stylus is free to vibrate. The recorder is shown in Figures 4 and 5, and it appears from those figures that the lever and stylus may be adjusted along the line of a diameter of the circle of the diaphragm. Means are provided for regulating the tension between the lever and the diaphragm. With the exception of unimportant details including the eccentricity referred to, the same recorder or recording sound-box is shown and described and claimed in French patent to Berliner No. 207090 of November 11, 1890. This appears not only from the description of the two patents, but also from a comparison of Figures 4 and



5 of U. S. Patent No. 534543 with Figures 1 and 2 of the French patent. The essential features of construction of the one constitute the essential features of the other. The principles and modes of operation of the two are alike, and the two embody and operate according to the one and the same invention. The eccentricity of the lever shown in Figure 4 of the United States patent is not a qualification or limitation of the foregoing statements, for the reason that such eccentricity is a mere modification or improvement upon the main features which are claimed without the eccentricity in the United States patent in Claims 6, 7, 8, 9, 10 and 16, for example. Berliner's reproducer shown in Figures 6 and 7 of the United States patent consists of a diaphragm mounted in a casing connected with the leaf spring or lever carrying at one end a reproducing stylus, which end is free to vibrate, while the other end is fixed to the casing. The leaf spring or lever consists of two parts bent at right angles, the one to the other at about the middle, and means are provided for adjusting the tension between the diaphragm and the lever. In the tube attached to the reproducer one or more perforated diaphragms (114) are placed for the purpose of lessening or rendering more clear the sound given out. A comparison of the description of the reproducer and of Figures 6 and 7 of the United States patent with the description and Figures 3 and 4 of the French patent, and with the description and drawings of German Patent to Berliner No. 53622, of November 20, 1889, show that the reproducer of the American patent and of the French and German patent are identical as to the details of construction, the functions, principle and mode of operation, and that one and the same invention is embodied in each and claimed in each of the three patents.

Referring to Canadian Patent No. 41901, of Feb-



ruary 11, 1893, to Berliner, assignee of Suess, this Canadian patent is identical in its drawings and description with the United States Patent No. 427279, of May 6, 1890, to Berliner, assignee of Suess, except that there is a slight difference of arrangement of the paragraphs of the description, and except that there is a radical difference between the claims of the two patents, the claims of the Canadian patent being of the broadest possible character, referring especially to Claims 11, 12 and 13, for example, and particularly to Claim 11. In the Berliner-Suess Canadian and United States patents it is said:

"The stylus engaging with its point the record groove, is controlled by the walls of the latter, and as will be hereinafter more fully shown, I rely upon this control of the stylus by the walls of the record groove for the movement of the stylus across the face of the disc, there being no positive feeding mechanism for thus moving the stylus."

This movement is broadly claimed in Claim 11, for instance, of the Canadian patent, which reads as follows:

"11. In an apparatus for reproducing sounds from a rotating record tablet, a reproducing stylus mounted to have a free movement over the surface of the record tablet, substantially as described."

The Suess apparatus is substantially identical with talking machines of that class upon the market not provided with feed mechanism or feed screws to move the stylus across the face of the disc, but depending upon the walls of the rotating record for that purpose. Referring to Figure 3 of the patent in suit, No. 534543, the apparatus there shown by Berliner and described at p. 4, line 95,



to p. 5, line 33, is purely and simply the apparatus shown and described and claimed in the Berliner-Suess Canadian and United States patents, except that the reproducer carried by the end of the arm, 88, and connected with the horn, 94, 95, is the reproducer shown in Figures 6 and 7 of the Berliner Patent in suit No. 534543. That is to say, the only difference between Figure 3 of the patent in suit and the Suess machine of the Berliner-Suess Canadian and United States patents, is that Berliner has introduced improvements in the details of construction of the reproducer, and this, I understand, is what Berliner meant when he said in the part already quoted, that the features of his invention had reference to the "construction of the details of both the recorder and reproducer of the gramophone." With this exception, therefore, the exception of the details referred to of the reproducer shown in Figures 6 and 7 of Patent No. 534543, the reproducing apparatus of Berliner as a whole, its principle and mode of operation shown in Patent No. 534543, is identical with, and is in fact nothing but the Suess apparatus of the Berliner-Suess Canadian and United States patents.

Passing now to Berliner Patent No. 564586, of July 28, 1896, it appears from the statement thereof, that the invention was patented in England by English Patent No. 15232, of November 8, 1887. A comparison of the Berliner French and German Patents No. 186827, of November 8, 1887, and No. 45048, of November 8, 1887, with English Patent No. 15232, of 1887, shows that the drawings of the three patents are identical, that the French patent, including the claims thereof is a literal translation of the English patent, and that the German patent describes exactly the same things in slightly different language. In the United States patent Berliner first describes the drawings, from page 2, line 7, to page 2, line 54. With the exception of Figure



10, these same drawings are shown in the said English, French and German patents, and at page 2, line 22, of the United States patent, Berliner says, "Figure 10 is a sectional elevation of a modified form of my reproducing apparatus." From page 3, line 55, to page 4, line 45, of the United States patent, Berliner describes the deposit of a film of ink upon the traveling tablet and the drawing of a phonautographic record thereon, and the copying of that record in solid resisting material. From page 4, line 46, to page 4, line 89, Berliner describes the reproducing of the original sounds by his apparatus shown in the figures other than Figure 10. He says (p. 4, lines 80-89): "The stylus is then adjusted with its point in engagement with the outer end of the record groove, and the weight, 26, is allowed to descend. It will now be clear that the stylus will be forced positively to follow the undulations of the record, and that the diaphragm vibrating under the stylus will emit the same sounds which produced the original record, which sounds can be distinctly heard at the ear-piece 34." This identical language is found in English Patent No. 15232, of 1887, at page 8, lines 44-50 thereof, and is, of course, found in the French patent, which is a translation thereof, and substantially the same thing is stated in the corresponding German patent (see paragraph last but one preceding the patent claims). Broadly Berliner's invention so described in the United States Patent No. 564586 and in the said corresponding English, French and German patents is claimed in the patent in suit No. 534543 in Claims 5 and 35 thereof, which read as follows:

"5. The method of reproducing sounds from a record of the same which consists in vibrating a stylus and propelling the same along the record by and in accordance with the said record, substantially as described."



"35. In a sound reproducing apparatus consisting of a traveling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described."

This, I understand, is what the Circuit Court of Appeals meant, when, in its opinion in the suit of the Victor Talking Machine Company, *et al.*, vs. The American Graphophone Company it said:

"The specifications in that application (for 564586) were full enough to warrant the making of the claims here in controversy (5 and 35); at any time the application might have been amended by adding such claims, and in our opinion it is immaterial that instead of thus amending it he took the broader claims on another application filed while the first was pending. The second may fairly be considered a continuation of the first."

I am confirmed in my opinion as to this point by the statement with which Berliner continues the description of his invention. Continuing from page 4, line 89, he says:

"Both the process and the apparatus thus far described may be modified in various ways without departing from the main features of my invention \* \* \* an arrangement of this character is shown in Figure 10."

It is thus perfectly clear that Claims 5 and 35 carried from the specification of Patent No. 564586 to the specification of the patent in suit No. 534543 cover and protect the invention, the identical invention claimed in United States Patent No. 564586, and in the corresponding English, French



and German patents mentioned. Claims 8, 9, 10 and 13 of Patent No. 564586 are identical or substantially identical with Claims 9, 12, 13 and 14 of the English and French patents, and the preceding method claims of the three patents are so clearly alike in the United States, English and French patents, that it is unnecessary to make any analysis of them, while the corresponding German patent claims the same things and methods according to the German practice. Claim 9, for instance, of English Patent No. 15232, of 1887, reads as follows:

"9. In a gramophone, the combination of a sound receiving diaphragm or other sonorous body; with a pivoted stylus controlled by a diaphragm, and controlling the same, and a support adapted to carry a phonautographic record sheet or a copy of such record, in solid resisting material, travelling in the plane of vibration of the point of the stylus, substantially as described."

It is perfectly clear that Claim 9 quoted from the English patent is inseparably connected with the invention described in Claims 5 and 35 of Patent No. 534543, and that the invention described and claimed in Claims 5 and 35 of the patent in suit is inseparably connected with Claim 9 of the English patent. They are, indeed, for one and the same invention, made at the same time prior to Berliner's application filed November 7, 1887, in the United States for Patent No. 564586, forming part of one and the same inventive act, differing perhaps in scope, but being for essentially the same invention and including, as Berliner himself states, all the main features of his invention.

With reference to the reproducing apparatus shown in Figure 10 and described in lines 90-128 on page 4 of Berliner Patent No. 564586, I am clearly



of the opinion that such reproducing apparatus could not reproduce the sound recorded in a sound record. I am familiar and have for several years been familiar with talking machines put upon the market, and I have never seen a talking machine operating as the reproducing apparatus in Figure 10 is said to operate, nor have I ever heard of a machine so operating, and from my practical knowledge of talking machines acquired from the manufacture thereof on a large scale, I am able to state that the reproducing apparatus shown in Figure 10 is inoperative. For the following obvious reasons, well known to any person skilled in the art and apparent to any person who may familiarize himself with the subject matter, the apparatus shown in Figure 10 is incapable of reproducing sound recorded in a sound record. These reasons are:

First. The tube, 33, attached to the sound-box, 31, carrying at its end a flaring portion, is without any support whatever, except for its attachment to the sound-box, and no means are shown or suggested for the support of the tube. Therefore, the weight of the tube bearing upon the sound-box would throw the stylus, 29, out of adjustment with the groove of the sound record, and it would be impossible in the apparatus shown to keep the stylus in the groove of the record, because of the constant pressure exerted by the weight of the tube. If the tube were a horn, such as is generally used, the inability of the stylus to keep in adjustment with the groove of the record would be still greater. Another difficulty that would be caused by the weight of the tube bearing upon the sound-box would be the swaying of the carriage or truck, 55, upon the rail, 56. Without a horn, tube or other device attached to the sound-box or diaphragm casing, the audible reproduction of the sound would be practically impossible.



Second. The stylus, 29, is attached apparently to a pin projecting from the center of the diaphragm, but the stylus is without a fulcrum, as in Figures 3, 6 and 7 of Patent No. 534543. Therefore, although the stylus would be moved laterally by the lateral undulations of the record groove, the stylus thus moving would not cause the diaphragm to vibrate, and hence would not cause the sound to be reproduced.

Third. The movements of the stylus caused by the undulations of the record groove would be communicated to the truck, 55, suspended by wheels upon the rail, 56. Hence, as the stylus moves laterally, the truck, 55, would move laterally, and the diaphragm would not vibrate and the sound would not be reproduced. If the stylus had a fulcrum or were otherwise connected with the diaphragm, so that it would, under proper conditions, cause the diaphragm to vibrate, and if the weight of the truck were made sufficiently large, there might be a vibration of the diaphragm, but in such case the weight of the truck would be so great as to interfere with its movement across the face of the record disc. No such arrangement, however, is shown or suggested, and even such an arrangement would be an impracticable one.

Fourth. Lost motion would occur where the pins pass through the wheels attached to the truck; in other words, the truck would vibrate and a proper reduction of sound would be impossible.

Fifth. The revolving disc would cause a swaying of the truck and the suspended sound-box with its attached stylus, by reason of which the stylus would constantly be forced out of adjustment with the groove of the sound record. As already stated, the weight of the tube, 33, would also have this effect.



Sixth. The pressure of the walls of the record groove upon the point of the stylus would tend to lift the inner wheel from the rail, and for this reason and for other reasons stated, the truck, 55, would constantly wobble.

Seventh. The height of the rail, 56, from the record, 54, is fixed or constant, and so is the length of the truck with the suspended diaphragm and stylus attached. No method is shown or described of causing the stylus to reach into the groove of the record. The depth of the record constantly varies, as is well known to all persons skilled in the art. If, therefore, the stylus does not reach down far enough, it will not enter the groove of the record, and if the stylus reaches down too far and comes in contact with the bottom of the record, the wheels of the truck, 55, would be lifted from the rail, 56, and the truck would fall.

Eighth. In the manufacture of disc talking machines, it has so far been impossible to construct a machine so that the record tablet or the plate supporting the record tablet will revolve in a plane perfectly horizontal. The revolving disc or tablet wobbles, or, in other words, the surface of the disc or tablet rises or falls, the rise or fall increasing toward the circumference. Because of this rise or fall of the revolving disc or tablet, either the stylus would leave the record groove or the bottom of the record groove would press upward against the point of the stylus and throw the truck off the rail, 56. In any case where the point of the stylus loses its adjustment with the record groove, the surface of the disc or tablet would subsequently strike against the point of the stylus and throw the truck off the rail.

Ninth. Record tablets are of varying thickness, and if the stylus would reach into the record groove of one record tablet with proper adjustment, it is



clear that it would not reach into another record groove upon a tablet of different thickness with proper adjustment. Therefore, either the truck would be thrown from the rail, or the point of the stylus would not reach the record groove.

Tenth. No method is shown or suggested of adjusting the stylus to the record groove or of keeping the stylus in the record groove, or of overcoming any of the difficulties pointed out, and although parts of a record might be reproduced, it would, in my opinion, clearly be impossible to reproduce a record of sound from start to finish.

Eleventh. In my opinion, the arrangement shown in Figure 10 is a mere laboratory experiment and not a practical or operative device, and the patent so far as this arrangement is concerned is a mere "paper patent."

My attention has been called to the article on Berliner's Gramophone published in the *Electrical World* for November 12, 1887. Mr. Berliner there suggests, as in No. 364586, at page 4, lines 123-126, that a "tolerably good reproduction may also be obtained by simply holding one end of a reed between the teeth and the other pointed end of the same in engagement with the record groove, while the disc is rotated." In the article in the *Electrical World*, Mr. Berliner says:

"This suggests the plan of mounting a reproducing diaphragm and stylus on a carriage moving on rails and permitting the point of the stylus not only to vibrate, but also to push the carriage across the revolving disc and thereby follow the volute of the sound record."

I have tried the method of reproducing sound by means of holding one end of a reed between the teeth, etc., as described; and the same is purely theo-



retical, no audible or reasonable or recognizable reproduction of sound being possible by such method, and in my opinion, the mounting of a reproducing diaphragm on a carriage moving on rails belongs to the category of reeds held at one end by the teeth. In his testimony in rebuttal in the suit of the Victor Talking Machine Company, *et al.*, vs. the American Graphophone Company, Mr. Berliner testified (Q4.), that his original apparatus embodying the construction shown in Figure 10 was lost. He further testified (Q6.) that the device covered by Claims 5 and 35 was first sold and put in public use in this country in 1894, by the United States Gramophone Company, seven years after the application on November 7, 1887, for the Patent No. 564586, in which the arrangement shown in Figure 10 thereof is described. From an article published in the Electrical World for August 18, 1888, less than a year after Berliner filed his application on November 7, 1887, it appears that Suess' apparatus in this perfected form, the form in which it is used today, was then being used by Berliner, and I believe that the apparatus shown in Figure 10, above referred to, never was and never could have been more than a laboratory experiment.

Annexed hereto is a copy of the application filed on behalf of the Talk-o-Phone Company for Letters Patent of the United States for improvements in talking machines. The first action of the Patent Office upon the application was had on March 8, 1906, with the result that the Patent Office had raised no objection of any kind to Claims 8, 9, 10 and 16, and only a formal objection to Claim 17, which claims cover the mechanical feed device of the machine now made and put upon the market by the Talk-o-Phone Company. Aside from its patentable features the machine described in the said annexed application and the talking



machine manufactured by the Talk-o-Phone Company in accordance therewith, one of which is herewith offered in evidence and marked Exhibit A, is made in accordance with English Letters Patent to Edison No. 1441 of 1878, and in accordance with numerous other patents for mechanical feed devices. Such mechanical feed devices operate on an entirely different principle from the Suess machine shown in Figure 3 of the Patent in suit No. 534543. Suess distinctly states in the Berliner-Suess Canadian and United States patents that he relies "upon this control of the stylus by the walls of the record groove for the movement of the stylus across the face of the disc, there being no positive feeding mechanism for thus moving the stylus" (United States Patent 427279, page 1, lines 64-69); Canadian Patent No. 41901, page 3). In the Patent in suit No. 534543, at page 5, line 25, Berliner says, speaking of the same Suess device shown in Figure 3: "The rotating record groove will guide the stylus across the face of the tablet."

It appears from the annexed letters of Horace Pettit and the Victor Talking Machine Company that the complainant, the Victor Talking Machine Company, unwarrantably claims to the public that the Talk-o-Phone "mechanical feed" device is an infringement of Berliner Patent No. 534543, and that the "mechanical feed" device can have no useful function to perform and is merely an attempt to evade said patent. These and all such statements I distinctly and emphatically deny. It is perfectly clear that the Talk-o-phone mechanical feed device and machine is manufactured according to well known principles of construction existing prior to November 7, 1887, and in accordance with the new patentable features described in the description and claims of the annexed application.

On March 13, 1906, at No. 90 West Broadway, in



the City of New York, I met Mr. Edward D. Easton, President of the American Graphophone Company, and also Messrs. G. W. Lyle and R. F. Cromelin, officers of the same Company, and conversed with them with reference to talking machine matters. They urged upon me the advisability of the Talk-o-Phone Company taking a license under the Patent in suit No. 534543 from the Victor Talking Machine Company, complainant herein. They argued that it would be impossible for the Talk-o-Phone Company to prove the invalidity of that patent, notwithstanding the advice of our counsel, Mr. Hicks, to the contrary, and they stated that Mr. Pettit and Mr. Mauro were confident that no one could now overthrow the patent. I spoke to them with reference to the Jones Record Patent recently held invalid by Judge HAZEL in suits brought by the American Graphophone Company, and they said that the Jones Patent had at least been the means of securing for them a license under the Berliner Patent in suit. They seemed very anxious to have the Berliner Patent in suit now upheld, and as before stated, discouraged the idea that any one could or should further litigate that patent, and advocated strongly that the Talk-o-Phone Company take a license under the patent. I annex hereto copies of letters sent by the Victor Talking Machine Company to the trade and by its counsel, Mr. Pettit, to customers of the Talk-o-Phone Company. In the letter of March 6, signed by Leon F. Douglass, Vice-President, this idea of taking a license under this expired and invalid patent is also advocated by the Victor Company.

The Talk-o-Phone Company is financially responsible. It has done and is doing a large business and owns and operates a large factory and plant at Toledo, Ohio, and has a branch office in the City of New York and in San Francisco, Cali-



fornia. Should the motion for preliminary injunction be denied the Talk-o-Phone Company would be amply able to respond in damages should the complainants eventually succeed at final hearing.

I have read the annexed affidavits of Edward F. Leeds (two) and of Albert L. Irish and the statements contained therein are true to the best of my knowledge, information and belief. I agree also with the reasoning and conclusions of said Leeds and Irish in matters relating to the use of records and machines. I herewith offer for the inspection of the Court a second sample Talk-o-Phone with a mechanical feed device, marked Exhibit B, which the Talk-o-Phone Company is now manufacturing under my direction. An application for a patent on said Exhibit B has been filed in the United States on behalf of the Talk-o-Phone Company. As more fully set forth in the annexed affidavit of Mr. Irish the Talk-o-Phone Company has expended over Twenty Thousand dollars advertising its Talk-o-Phone with the mechanical feed device (Exhibits A & B) and the factory of the Talk-o-Phone Company has been equipped at great expense to manufacture and sell the same on a large scale.

The Talk-o-Phones with the mechanical feed devices (Exhibits A and B) are recording as well as reproducing machines. They will record sound upon the usual tablets and will reproduce sound from the record of the same after recording. Thus it appears that the movement of the stylus across the face of the record in such Talk-o-Phones depends solely upon the mechanical feed device. Complainants' machines will not record but will only reproduce, thus showing that complainants' machines depend entirely upon the record groove



Affidavit of Edward F. Leeds.

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for the movement of the stylus across the face of  
the record.

HARRY ENSIGN.

Subscribed and sworn to before me }  
this 5th day of April, 1906 }

[NOTARY'S  
SEAL.]

T. P. Dalton,  
Notary Public,  
Kings Co.

Certificate filed in New York Co.

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

LEEDS & CATLIN COMPANY.

In Equity No.  
8797.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

TALK-O-PHONE COMPANY.

In Equity No.  
8859.

State and County of New-York, ss.:

Edward F. Leeds, being duly sworn, says: I  
am President of Leeds & Catlin Company and  
I have been actively engaged in the talking machine  
business for over fifteen (15) years last past. I  
took an active part in the business of the North  
American Phonograph Company, which controlled



the phonograph and graphophone patents and manufactured sound records for that Company, and became familiar with the use and construction of recording and reproducing machines. About the year 1896 I became connected with Mr. Cleveland Walcutt in the talking machine business, and Mr. Walcutt and I for many years did business under the firm name of Walcutt & Leeds, manufacturing many thousand of sound records and various parts of talking machines for use in recording. Later I organized the Leeds & Catlin Company, which is now and has been since its organization actively engaged in the manufacture of sound records, especially disc sound records.

The business of the Leeds & Catlin Company consists and has always consisted in the manufacture and sale of sound records, cylinder and disc sound records. The Leeds & Catlin Company has not been engaged in the manufacture of talking machines of any kind, except such recording machines as are used in the recording of sound records made in the manufacture by it. I have applied and obtained various Letters Patent for inventions made by me in the talking machine art, and I have studied and am familiar with the principal Letters Patent relating to this art. I have made a very careful study of the theory and of the practice of recording and reproducing sound, and I am familiar with and I understand thoroughly the various machines and parts of machines used for such purposes.

I have read the annexed affidavits of Harry Ensign of the Talk-o-Phone Company, and of Louis Hicks. I have read the French, German, English and United States patents referred to in their said affidavits, and I agree with them:

First. That the reproducer shown in Figures 6 and 7 of the Patent in suit No. 534543, to Berliner,



and described in the specification thereof, embodies the invention and only the invention embodied in German Letters Patent to Berliner No. 53622, of November 20, 1889. The reproducer shown, described and claimed in these two patents consists of a diaphragm mounted in a casing with a leaf spring extending over and across the diaphragm. The leaf spring is bent at about its center so that the surfaces of the two parts are at right angles the one to the other. One end of the leaf spring, the part parallel to the surface of the diaphragm, is fastened to the casing, while the other end carrying the reproducing stylus is free to vibrate. The reproducing stylus is attached to the free end of the leaf spring in the same manner in each patent and the leaf spring is connected with the center of the diaphragm, and means are provided with which to regulate the tension between the diaphragm and the leaf spring. In each case the leaf spring is elastic in two directions at right angles to each other. Pieces of soft rubber in each case are used to dampen the individual vibrations of the leaf spring. The principle embodied in these reproducers of the said German and United States patent, the functions, the mode of operation and the construction of nearly every detail are substantially the same in one as in the other, and both cover and embody the one invention.

Second. That the invention shown in figures 6 and 7 of the Patent in suit No. 534543 and described and claimed in the specification thereof is identical with the invention shown in Figures 3 and 4 of French Patent to Berliner No. 207090, of July 19, 1890, and described and claimed in the specification thereof. As the reproducer of the French Patent is identical in its construction, principle and mode of operation with the reproducer of the German Patent, it is unnecessary to



describe its details. It may be mentioned that the reproducer of the French Patent shows the perforated disc D (Figure 3) in the neck or tube attached to the diaphragm casing as in Figure 7 of the United States Patent (114), for the purpose of lessening the volume of the sound or rendering the sound more clear. In the German, French and United States patents the edge of the leaf spring comes in contact with the diaphragm casing at the point or place where the free end of the leaf spring passes over the rim of the diaphragm casing.

Third. That the invention shown in Figures 4 and 5 of the patent in suit and described and claimed in the specification thereof is the same as in the invention shown in Figures 1 and 2 of said French Patent No. 207090 and described and claimed in the specification and claims thereof. The eccentricity of the lever shown in Figure 4 of the United States Patent is a mere difference in detail in no way affecting or qualifying the identity existing between the essential features of construction of the recorders of the two patents, and in the United States Patent the essential features of the recorder shown in Figures 4 and 5 are claimed without the eccentricity in Claims 6, 7, 8, 9, 10 and 16, for example, and in Claim 25. As appears from Figure 4, the lever 61 may be adjusted so as not to be eccentric and so as to be along the line of a diameter. In the United States Patent (p. 3, lines 53-56), it is said of Figures 4 and 5, "to the end of the lever 61 is secured the recording stylus 62, by soldering or otherwise, with its plane at right angles to the plane of the lever as shown." In the French Patent it is said that the acoustic spring FH may be "composed either of two springs placed at right angles the one to the other as in Figures 1 and 2, or of a spring bent as in Figures 3 and 4." It is significant that in the United States and



French patents the acoustic springs of the recorders are composed of two springs placed at right angles the one to the other, while the acoustic springs of the reproducers are bent. It is clear that the two patents show, describe and claim one and the same invention.

Fourth. That the invention shown, described and claimed in United States Patent No. 564586 and in Claims 5 and 35 of No. 534543, the patent in suit, is also shown, described and claimed in English Patent No. 15232, of 1887; in German Patent No. 45048, of November 8, 1887, and in French Patent No. 186827 of November 8, 1887. This matter has been so fully considered in the affidavits of Messrs. Ensign and Hicks, with whose statements and conclusions I agree, that it is unnecessary to repeat the reasons for my opinion here.

Fifth. That the invention shown, described and claimed in Canadian Letters Patent No. 41901, of February 11, 1893, is identical with the invention shown in Figure 3 of the patent in suit, except in so far as Figure 3 of the patent in suit is modified by the use of the reproducer shown in Figures 6 and 7 of the patent in suit. The improved Berliner gramophone illustrated in the Electrical World of August 18, 1888, is obviously the gramophone of Werner Suess, and is substantially identical with the gramophone illustrated in the said Canadian Patent and in the corresponding United States Patent No. 427279, to Berliner as the Assignee of Suess.

I have carefully read Letters Patent to Berliner No. 564586, of July 28, 1896, applied for November 7, 1887, and have considered especially Figure 10 thereof and that part of the description (p. 4, lines 90-128) describing Figure 10. I have constructed an apparatus such as is shown in Figure 10, using,



however, a spring motor instead of a weight as the power with which to cause the tablet to rotate. With a stylus affixed to the diaphragm, as shown in Figure 10, it is impossible to obtain any practical or intelligible reproduction of sound. It is further impossible to attach a horn such as is shown in Figure 3 of the patent in suit to the diaphragm shown in the construction of Figure 10 of No. 564586, and to operate the apparatus so as to obtain a reproduction of the sound. It is, moreover, impossible to attach such a tube and flaring portion 33, shown in said Figure 10, to said diaphragm and to operate the apparatus so as to obtain a reproduction of sound. A stylus similar to the stylus 29 of Figure 10 and attached in like manner does not cause the truck 55 to move across the rail, but constantly bends, slips and leaves the record groove. As the record tablet never revolves in a plane perfectly horizontal, a truck suspended perpendicularly, as shown in Figure 10 does not keep the stylus in contact with the record groove. as I made and endeavored to operate immediately  
an apparatus such as shown in Figure 10, and such destroys the record by the slipping and scratching of the stylus. Difficulty was experienced in getting the truck 55 to maintain itself upon the rail 56, and in several instances the truck was thrown from the rail. As the tablet revolves the record groove striking the end of the stylus, such as 29, causes the truck to wobble. The depth of the grooves of disc sound records constantly varies and very likely this cause contributed to the indistinct reproduction obtained. Under favorable conditions, and using a reproducing stylus of today unlike that shown in Figure 10, and not using a horn, a reproduction of sound could be obtained, but from the apparatus shown in Figure 10, intelligible and continued reproduction of sound and the continued movement of the carriage along the



rail, and the keeping of the stylus point in the groove of the record was impossible. With the experience of today, many improvements could, of course, be suggested with reference to the construction shown in Figure 10, but I do not believe that even today a commercial and successful apparatus could be made according to that arrangement for the reason that I do not see how it would be possible to enable the diaphragm casing to carry the large horn used with all talking machines of today, and enable or permit the carriage to move across the rail 56.

The superintendent of my factory, Mr. Leo Moeller, assisted me in my experiments consisting in the construction and attempted operation of an apparatus such as is shown in Figure 10 of Patent No. 564586. Although I have been familiar with all talking machines put upon the market in the United States since the organization of the North American Phonograph Company in 1888, I never saw or heard of a talking machine operating according to the arrangement shown in Figure 10, except the one which, for the purpose of experiment, I constructed with my assistant, Mr. Moeller, in March, 1906.

EDWARD F. LEEDS.

Subscribed and sworn to before me }  
this 5th day of April, 1906. }

[NOTARY'S SEAL] T. P. Dalton,  
Notary Public,  
Kings Co.

Certificate filed in New York Co.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*

vs.

LEEDS & CATLIN COMPANY.

In Equity  
No. 8797

VICTOR TALKING MACHINE COM-  
PANY, *et al.*

vs.

TALK-O-PHONE COMPANY.

In Equity  
No. 8859.

State and County of New York, ss.:

Leo Moeller, being duly sworn, says: I am superintendent of the factory of Leeds & Catlin Company and have been engaged in the talking machine business, especially in the manufacture of disc and other sound records, for the past four and one-half years. I have read the annexed affidavit of Mr. Edward F. Leeds and I conducted with him and assisted him in the making of the experiment with an apparatus which we constructed in accordance with the arrangement shown in Figure 10 of United States Patent No. 564586 to Berliner, and in accordance with the description thereof found at page 4, lines 90-123. For the reasons stated by Mr. Leeds in his said affidavit the apparatus constructed and operated by us as aforesaid, in March, 1906, was not successful, and from my experience with talking machines I believe that an apparatus such as is shown in said Figure 10 belongs to the



class of laboratory experiments only. I have never heard of such a machine ever put upon the market and I never saw one except the one which Mr. Leeds and I constructed and operated as aforesaid in March, 1906.

LEO MOELLER.

Subscribed and sworn to before me }  
this 5th day of April, 1906. }

T. P. Dalton,  
[NOTARY'S SEAL.] Notary Public,  
Kings Co.  
Certificate filed in New York County.

**Defendant's Exhibit, Translation of  
Berliner French Patent No.  
186827, of November 8, 1887.**

Descriptive memorandum, annexed to patent of invention for fifteen years, taken November 8, 1887 by Mr. Emile Berliner, represented by M. Albert Cahen, Paris, Boulevard Saint Denis, No. 1, and which has been delivered to him by decree of the Minister of Commerce and of Industry under date of January 26, 1888, for "an apparatus for the recording and reproduction of sounds called gramophone."

**PATENT NO. 186827.**

This invention has reference to a novel method of, and apparatus for recording and reproducing all kinds of sounds, including spoken words, and is designed to overcome the defects inherent in that art, as now practised and in the apparatus used therefor.

(Note: The translation of the balance of this French Patent No. 186827 is identical with the complete specification of Letters Patent of Great Britain No. 15232, of 1887, to Emile Berliner, from line



9, page 1 thereof, beginning with the words, "By the ordinary method," and continuing down to the end thereof, including the claims, except that in said letters patent of Great Britain the claims are introduced by the following words: "Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is," while in said French letters patent the claims are introduced by the words "Summary; I claim as distinctive features of my invention"; and except that said letters patent of Great Britain close with the following words: "Dated this 8th day of November, 1887. Philip M. Justice, 55 and 56 Chancery Lane, London, Applicant's Agent," and said letters patent of France close with the words, "Paris, November 8, 1887, for Mr. Berliner. Signed; Albert Cahen." The 16 figures of the drawings of each of the two said patents are identical.)

The following certification appears upon said French letters patent:

(Seal; National Office of Paris, November, 6, 1905.  
Industrial Property; National Conservatory of Certified as a correct  
Arts and Trades.) copy.

Secretary General of  
the National Office  
Of Industrial Prop-  
erty.

P. Noblesse.

[Note: See stipulation, *infra*, p. 548, as to drawing of French Patent No. 186827.]

**Defendant's Exhibit. Translation of  
Berliner French Patent No.  
100602, of May 15, 1888.**

Descriptive memorandum annexed to patent of



invention for fifteen years, taken May 15, 1888, by Mr. Emile Berliner, represented by M. Albert Cahen, Paris, Boulevard Saint Denis, No. 1, and which has been delivered to him by decree of the Minister of Commerce and of Industry, under date of July 20, 1888, for "an improved process for the recording of sounds for their reproduction."

PATENT NO. 190602.

In a prior patent I have described a method of recording and reproducing spoken words and other sounds, etc.

(Note: The translation of the balance of this French Patent No. 190692 is identical with the complete specification of Letters patent of Great Britain No. 7204, of 1888, to Emile Berliner, from line 7, page 1, thereof, beginning with the words, "and in connection therewith," and continuing down to the end thereof including the claims, except that in said letters patent of Great Britain the claims are introduced by the following words;—"having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is," while in said French letters patent the claims are introduced by the words, "Summary; Having thus completely described my invention, I claim as the principal points characterizing it"; and except that said letters patent of Great Britain close with the following words;—"Dated this 15th day of May, 1888. Philip M. Justice, 55 and 56 Chancery Lane, London, Applicant's Agent," and said letters patent of France close with the words, "Paris, May 15, 1888. For Mr. Berliner. Signed Albert Cahen.")



The following certification appears upon said French letters patent:

(Seal; National Office of Paris October 30, 1905.  
Industrial Property; Na- Certified as a correct  
tional Conservatory of copy.  
Arts and Trades.)

Secretary General of  
the National Office  
Of Industrial Prop-  
erty.

P. Noblesse.

**Defendant's Exhibit, Translation of  
Berliner French Patent No. 207090,  
of July 19, 1890.**

Descriptive memorandum annexed to patent of invention for fifteen years taken July 19, 1890, by Mr. Berliner (Emile), represented by M. Armengand, Jr., Boulevard de Strasbourg, 23, Paris, and which has been delivered to him by decree of the Minister of Commerce, Industry and the Colonies under date of November 11, 1890, for "gramophone sound-boxes."

**Patent No. 207090.**

Figures 1 and 2 represent the recording sound-box.

Figures 3 and 4 represent the reproducing sound-box.

AA, casing as for telephones, microphones, etc.,

B, diaphragm.

C, acoustic tube.

D, diaphragm perforated to render the tone more clear.

E, small column.

FH, acoustic spring in combination, of elastic metal, caoutchouc, etc., composed either of 2 springs placed at right angles the one to the other,



as in Figures 1 and 2; or of a spring bent as in Figures 3 and 4.

GG rings of caoutchouc (they may also be of felt) to dampen the individual vibrations of the acoustic springs.

I, acoustic pin with or without threads, which transmits the vibrations of the diaphragm or of the acoustic spring from the one to the other.

KK, nuts serving to regulate, by making it ascend or descend, the acoustic spring, so that the diaphragm receives thus more or less pressure from above.

L, casing attached to FH and through which passes the acoustic pin which is there fixed by the screw, Q.

M, casing attached to the end of the spring FH, into which one inserts the needle O.

N, screw to hold the needle O.

P, screw to attach the acoustic spring FH to the casing, AA.

#### FUNCTION.

(See French Patent No. 186827, of November 8, 1887). Upon the surface upon which one is about to inscribe a sound-record (phonautographic inscription), one lowers the point of the spring FH until the latter forms the straight line xy. If, now, one speaks into the sound-box, the point of the spring will trace acoustic curves upon the surface. By engraving with a graving tool, with nitric acid, etc., (etching) one can then transform these curves into sound grooves.

In the reproducing sound-box 3, 4, the extremity of the acoustic spring H, carrying a ring of caoutchouc, G, presses against the casing of the sound-box. From the point of view of reproduction, this is more advantageous than if the spring were free, as in the recording sound-box 1, 2.



## CLAIMS.

1. An apparatus for *recording* or *reproducing* sound-waves, composed of a diaphragm and of a vibrating spring or leaf placed transversely over the latter and of which one end is fixed while the free end is in contact with the surface recording the sound-waves.

2. An apparatus for *recording* or *reproducing* sound-waves, composed of a diaphragm, of an acoustic spring placed over the diaphragm and attached to it, a spring which is in part surrounded by gutta-percha, felt or by other like material, so that this envelope dampens the individual vibrations of the acoustic spring.

3. An apparatus for *recording* sound-waves, composed of a diaphragm and of an acoustic spring connected with it, the free end of which is bent in its normal position but opens, so as to become straight, when it presses upon the tablet for the recording of the sound-waves.

4. An apparatus for *recording* sound-waves, composed of a diaphragm, of an acoustic spring placed over it and of a pin which connects the spring to the diaphragm in such manner that the tension between it and the acoustic spring can be regulated.

5. An apparatus for *reproducing* sound-waves, composed of a diaphragm, of an acoustic spring placed over it and of a casing at the free end of the acoustic spring, into which casing one point of a needle is fixed in such manner as to be able to be taken out of it and replaced without difficulty.

6. An apparatus for *reproduction* of sound-waves, composed of a diaphragm, of an acoustic spring placed over it and of a casing at the middle of the spring, which casing is traversed by a separate pin,



establishing the connection with the diaphragm or spring.

7. An apparatus to reproduce sound-waves, composed of a diaphragm, of a casing for the diaphragm and of an acoustic spring placed over the diaphragm and connected to it, while its free end presses upon or against the casing.

Paris, July 19, 1899.  
Representing Mr. Berliner,  
Signed; Armengand, Jr.

(Seal; National Office of Industrial Property; National Conservatory of Arts and Trades.)

Paris, October 19, 1905,  
Certified for correct copy,  
Secretary General of the National Office of Industrial Property.  
P. Noblesse.

(Seal; Ministry of Commerce, Industry, Postes and Telegraphs.)

Examined for the legalization of the signature  
Of M. Noblesse, Secretary General of the National Office of Industrial Property.  
Paris, October 19, 1905.  
For the Minister of Commerce and Industry, and by authorization.  
For the chief of the division of officers and of accounts.  
The sub-chief of the bureau of officers.  
L. Marcardit.



(Seal; Ministry of Foreign Affairs; French Republic.)

The Minister of Foreign Affairs certifies as genuine the signature of M. Marcardit.

Paris, October 19, 1905.

For the Minister,

For the Chief of the Bureau.

Charles Bavelier.

(Seal; Consulate General of the United States of America, Paris.)

U. S. Consul General, Paris, France, October 19, 1905,

The seal of the Minister of Foreign Affairs and

The signature of M. Charles Bavelier are certified to be genuine.

Hanson C. Coxe,

Deputy Consulate-General of the United States of America,

Paris, France.



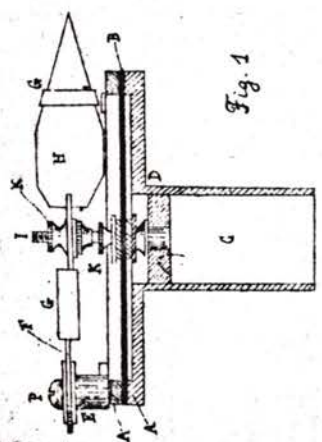


Fig. 1

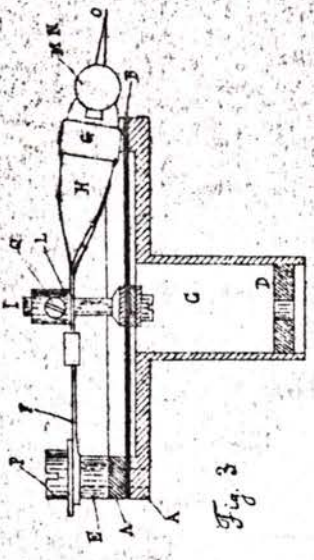


Fig. 3

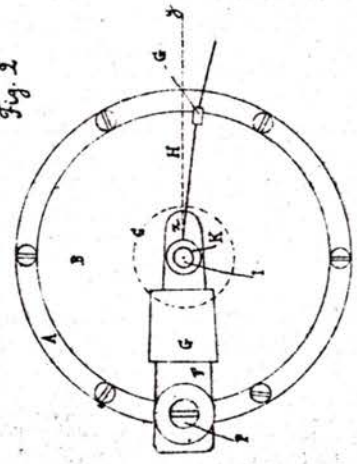


Fig. 2

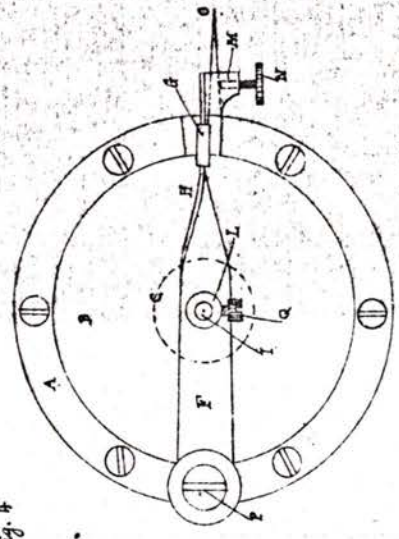


Fig. 4



**Defendant's Exhibit, Translation of  
Berliner German Patent No.  
45048 of November 8, 1887.**

**CERTIFICATE.**

That the annexed copy of the specification agrees with that which to the holder of Patent 45048 with the patent deed has been issued, is certified with the remark, that the patent has been cancelled in the rolls.

Berlin, November 6, 1905.

[Seal; Imperial      The President  
Patent Office]      of the Imperial Patent Office.  
                                 Haup.

Imperial Patent Office. Letters Patent No.  
45048.

Class 21: Electrical apparatus. Published November 2, 1888.

Emile Berliner of Washington (Columbia, U. S. A.)

Process and apparatus for the recording and reproducing of sounds. Patented in the German Empire from November 8, 1887.

The present invention has reference to a novel method of, and apparatus for the recording and reproducing of sounds and spoken words.

By the apparatus for recording sounds and spoken words heretofore brought into use by way of experiment a stylus attached to a vibratory diaphragm is intended under the influence of the diaphragm to indent a travelling sheet of tin-foil or other suitable material or by cutting along into the same to make a groove. The operation of such an apparatus is not satisfactory, because the force of a diaphragm vibrating under the impact of the sound-waves is too weak to overcome the resistance of the tin-foil to a sufficient extent. Add to this,



that the said resistance increases with the depth of the indenting or cutting and with the speed of the sheet of tin-foil, by reason of which the records obtained by the method hitherto employed cannot be correct. For this reason, loud sounds, for example, are less accurately recorded than weak ones, and the voice of a loud speaker recorded by the phonograph cannot be recognized. Moreover, if one gives to the stylus such a direction that the same touches the record surface only lightly, one obtains incorrect records; when in this case the diaphragm at times imparts a slight outward motion to the stylus, so that it does not touch the surface at all, the recording is entirely interrupted, especially if loud sounds are being recorded.

The present invention aims at a recording of sound-waves by a friction-resistance between the stylus and the recording surface which is constant throughout. The records obtained in this manner are then, by a special process, copied in a suitable, resisting material in order to be able to reproduce the sounds themselves.

The accompanying drawings illustrate two of the numerous forms in which an apparatus can be made according to the present invention.

Fig. 1 is a perspective view of one such apparatus.

Fig. 2 a perspective view of the recording diaphragm with the recording point or stylus.

Fig. 3 a perspective view of a part of the recording drum.

Fig. 4 a perspective view of the same part with the record surface applied.

Figs. 5, 6, and 7 show different views of a record surface.

Fig. 8 is a perspective view of another modified apparatus, in which the sounds are recorded upon a plain surface, while in the apparatus, shown in Figs. 1 to 7 the recording surface is cylindrical.



To illustrate further:

Figs. 9 and 10 a view of the appurtenant diaphragm with the stylus and a section through the middle of the first.

Fig. 11 a cross-section on the line x-x of Fig. 9.

Fig. 12 a vertical section through the middle of the recording disc.

Figs. 13 to 15 different details of construction of the mechanism and a centering device, and

Fig. 16 is a record-diaphragm.

According to the arrangements shown in Figs. 1 to 7, two standards H and J are mounted upon a base plate A, upon which is placed the shaft of the drum G which is provided with side-flanges. At one place B the cylindrical surface of the drum G is broken by a gap to the edges of which a box K, extending into the interior of the drum, is fastened. Upon the cylinder surface a thin film  $f'$ , Figs. 3 and 4, of felt or other elastic material is placed, which is bent over the edges of the gap B and secured to the inner walls of the box K. This film serves as an elastic support for the recording surface. For the latter a strip made of paper, metal or other suitable substance is employed, the ends of which, in the manner shown in Fig. 7, are secured to two bars  $c$  and  $d$ , which after placing the strip upon the elastic film  $f'$  of the drum, come to lie close together in the box K, Fig. 4, out of which they then project somewhat on the sides, in order by means of bolts  $q$  to fasten them together and thereby at the same time the strip to the drum. After the strip is fastened in the said manner, its surface is covered with a thin layer of a substance easy to remove by the action of the stylus. For this purpose lamp-black or smoke-black is used, which is deposited by placing a smoky flame under the strip and slowly turning the drum, until all parts of the strip are equally covered by the lamp-black. Such



a layer of lamp-black adheres well to the surface of a solid body, but can, as is known, be very easily removed leaving a plainly visible line. This process is known and has already been used in the production of phonautographic records.

The diaphragm *m*, Fig. 2, is mounted in a frame *n*, with its plane at right angles to the axis of the drum *G*.

A post *o* is fixed to the centre of the diaphragm for a stylus *s*, which in the post *o* and in the second post *p* (on the frame *n*) is pivoted, while its end extending over the latter, Fig. 1, lightly touches the record surface of the drum; the stylus constitutes accordingly a lever, which (of sufficient length) carries over the vibrations of the diaphragm to the record surface in a direction nearly parallel to the axis of the drum *G*. Near it the drum is slowly and uniformly rotated by means of a crank *L* or other like means, so that the free end of the stylus removes the lamp-black from the record surface in an undulating line, which is a true graphic representation of the sound, under the waves of which the diaphragm vibrates. Because of the extremely small friction, which in this the free end of the stylus has to overcome upon the record surface, the record of the undulating lines by loud and low sounds is alike correct, since the vibrations of the diaphragm, are not, as is the case in all other sound recording apparatus, here modified by the reaction of a sensible resistance. A phonautographic record obtained in this way can be fixed by the application of a thin layer of varnish of any kind which dries quickly and does not obliterate the record. If the deposit of lampblack is thick enough upon the record surface, the same can be handled without care.

After the application of the varnish the strip is removed from the drum and can then be preserved any length of time without disfiguring the record.



For the purpose of reproduction the record is copied in solid resisting material, preferably metal, which is accomplished either by a mechanical process of engraving, or electrical deposition or photo-engraving. The last process is to be preferred, since by it an exact copy of the record in copper, nickel, etc., can be obtained, without affecting the original record. The copied record is now fixed at both ends to the bars *c d*, as shown in Fig. 7, and is placed upon the elastic support of the drum in the same manner as the original record strip. In this it is necessary to take care that both ends of the groove *y* meet exactly, which is easily attained. In Fig. 1 is illustrated the apparatus with the engraved record upon the drum. The free end of the stylus pierces the undulating groove and the drum then uniformly revolves. Thus the end of the stylus is forced to follow the undulations of the groove *y*, while the other end of the stylus sets the diaphragm in vibrations corresponding with the undulations, which again reproduce the same sounds as those which produced the original record. In the phonograph and gramophone made hitherto, the stylus bearing upon the indented or engraved record is forced against the diaphragm only by the elevated portions of the record, while the opposite movement into the depressions of the record is accomplished solely and only through the elastic force of the diaphragm, since the latter is always under tension. In the present apparatus, the free end of the stylus moves in a groove of uniform depth and is moved positively in both directions, that is to say without dependence in one direction upon the elasticity of the diaphragm, and this sure movement of the one end of the stylus has as a consequence a forced movement of the diaphragm as sure.

This new process of recording and reproducing sound, does not, moreover, necessarily require the



use of a diaphragm, but there can also be used in its stead any sonorous body (for example a tuning fork) in like combination with the stylus. Also the record surface need not be placed upon a drum, but it can be supported in any suitable manner upon a solid support of any description, which is moved uniformly past the stylus.

Also the lamp-black can be replaced by any other substance, which adheres well to the solid supporting body and is removed from the same with a small force.

In the form of the new apparatus shown in Figs. 8 to 16 the fundamental principles of the gramophone first described are retained and only certain changes of construction are undertaken which offer improvements in the process. The cylindrical surface of the gramophone first described has the disadvantage, that a copying of the record by the process of photo-engraving requires first a straightening of the former and then a laying of the straight engraved record plate upon the drum for the purpose of the reproduction of the sound.

This manipulation, attended with many details, is avoided in the following apparatus, in which the record of the sounds is produced upon the under surface of a flat plate which lies horizontally. At the same time, this arrangement offers also the advantage that the material removed by the stylus falls away from the plate and leaves the undulatory groove very sharply defined, while in the apparatus described the material removed to the side by the stylus accumulates thickly in the adjacent grooves.

In Figs. 8 to 16, 1 is the platform of the apparatus, 2 a metal plate which is provided with a guiding rib 3 and is fastened upon the plate 1, and which supports the standards 4, 4'. Of the latter, one (4) is provided with a nut bearing 5, and the other (4') with a smooth bearing (5'), Fig. 13, for



the shaft 6, which to the middle (or beyond) is provided with screw-threads, while on the remaining smooth portion extending to the right for a considerable distance it is provided with a groove 16. Between the standards 4 and 4' is a movable support 7, which is movable upon the prismatical rib 3. This carries the shaft 6, the smooth part of which passing through a perforation of the movable support and through collars 8, 8 is securely connected with the movable support. The support 7 also carries the screw bearing 11, Fig. 12, of a bevel gear 9, which rests directly upon the screwed on head of the movable support and is provided with a flange 10, which serves as a support for the plate 13 (composed, with respect to the following transfer by the process of photo-engraving, of transparent material and preferably of glass free from blisters) and which is connected with the same by screws or the like. Finally, a bevel gear 14 fixed upon the shaft 6 engages bevel gear 9, by which the rotation of the shaft 6 is transmitted to the wheel 9 and (through this) to the glass disc 13, while the resulting longitudinal movement of the shaft 6 causes at the same time a similar movement of the movable support 7 and through this means a continual movement of the center of the glass disc 13.

Over the part (Fig. 13) of the shaft 6 provided with a longitudinal groove 16 is passed a sleeve 17 provided with a suitable spring or with a guide-pin 18, which sleeve on one side rests in the bearing 5' of the standard 4' and to which on the other side, by means of a wedge or the like, is fixed a compound gear 19. The latter is composed of a pinion 20, which meshes with a large bevel gear 22 mounted upon the shaft 23, and of a bevel gear 21 which meshes with the small bevel gear 24. Upon the shaft of the latter are secured the fans 25, which, rotating with great speed, serve as a regulator.



A weight 26, which is suspended by cords or the like 27, which are wound about shaft 23, is designed to set the latter in rotation and thereby the whole apparatus in action.

By this arrangement a fixed stylus pressing against the under surface of the rotating and at the same time advancing glass disc describes a spiral line, the pitch of which depends upon the degree of the advancing motion of the center of the disc and is determined by the pitch of the screw-thread of the shaft 6 and the rapidity of rotation of the disc itself.

In order to make the line, which the stylus describes upon the glass disc, visible and useful for further application, it is recommended in the present case to apply not lampblack but a layer of ink or color, which during the recording is sufficiently viscous neither to drop off nor to run. One obtains then, with extremely little friction of the stylus upon the glass disc, an extraordinarily sharply drawn line, which one can use in the following process of photo-engraving directly as a negative, when one exposes the metal to be engraved directly through the glass disc during the influence of the light at the described lines.

The recording stylus is in the present apparatus connected with the diaphragm 30, Fig. 9, in substantially the same manner as in that first described. The diaphragm itself (which, moreover, as in the first case, can also be replaced by any sonorous body) is fastened between two urceolate plates 31, Fig. 10. A tube, 32, of rigid material, which is inserted into one of the two plates, serves as a connection with a flexible tube provided with a mouthpiece, 34 (Fig. 8), which can serve as well for a speaking tube as for an ear tube. The diaphragm itself carries at its centre a knob to which one end of the stylus is made fast by means of a soft rubber tube, 41, which is simply flattened and



forced into a slot of the knob. The stylus, 29, consisting preferably of a flat strip of phosphor bronze, pointed at its extreme end and suitably curved, is provided at about the middle of its length with a hole, Fig 11, through which a pin 42, formed at one end of a metal block, 43, and inserted into the central bore of a second metal block, 44, passes, which on each side of the stylus carries a soft rubber washer. The metal blocks, 43 and 44, finally rest on the points of the adjusting screws, 46, which accordingly constitute the pivot of the stylus. Moreover, the free part of the stylus rests upon a piece of rubber tubing 48, or the like and consists itself of two pieces fastened to each other by a piece of rubber tubing 49, or the like. Because of this arrangement the free end of stylus is moved by the vibration of the diaphragm to the right and left of its position of rest, nearly parallel with the surface of the disc 13. The diaphragm is brought to the apparatus by a support 36, Fig. 10, which embraces the tubular support 32, and which is movable horizontally in a bearing 37, movable vertically in the standard 38. The process of recording and reproducing sounds by means of this apparatus appears from the foregoing description. The laying on of the ink or color upon the glass disc is preferably done in the following manner; the under surface of the same is carefully polished and dried and then by means of a camel-hair brush is provided with a thin film of oil, while the disc rotates with moderate speed. Hereupon a smoky flame is held under the glass disc, in order to blacken it with lamp-black, which is absorbed entirely by the previously deposited oil and forms with the same a dense, uniform coating of very small thickness.

This coating which adheres very well to the glass disc, offers no perceptible resistance at all to the



point of the stylus. The disc is now ready to receive the phonautogram, and it is moved to the position shown in Fig. 8, with the point of the stylus near the outer edge. The point is then so adjusted that it exerts only a very slight pressure against the disc, which barely suffices to penetrate the coat of ink, whereupon the hitherto supported weight 26 is set free so that it sets the apparatus in motion. Hereupon the stylus describes as already stated, a spiral line upon the disc. If now, during the progress of the disc, sound waves are directed against the diaphragm, through the mouthpiece 34 and the tubes 33 and 32, the stylus will be vibrated to the right and left of the spiral line, and an undulatory line, Fig. 16, of even depth at all points will be described, which records with entire accuracy the sounds taken up by the diaphragm.

When the stylus comes near flange 10, the adjusting collar 8, upon shaft 6, is loosened and the latter is permitted still to rotate somewhat further, whereby disc 13 rotates without progress of its middle point and the stylus describes a circle 51, Fig. 16, which later facilitates the centering of the transferred record and is, therefore, called the centering circle.

The glass disc is then removed from the apparatus and the record inscribed in the coating of the same is fixed by a thin coat of varnish, so that it may afterwards be handled without special care. Hereupon the copy of the record is produced in copper or other metal by means of the process of photo-engraving, wherein, as already stated, the original record is used as a negative. In the photo-engraved copy the sound-record appears, as an undulatory line of even depth, also the centering circle 51, by means of which, first of all, the center of the copy is determined by geometrical construction. After holes for the flange screws 12, Fig. 12, have been made on this at equal distances from the



determined center and diametrically opposite each other, and also a small hole in the middle itself, one can with certainty apply the metallic record to flange 10 of bevel gear 9. In order to increase the precision of this application, a suitable cylindrical block 52, Fig. 15, is placed in the upper part of the hole in which is found the head of screw 11, which serves as a pin for bevel gear 9. This block, which is called a centering block, has a fine axial hole 53, which corresponds exactly with the axis of wheel 9.

If now the photo-engraved copy of the record is placed upon flange 10, and the screw pins 12 passed through the corresponding holes, a fine pin, say a sewing needle, is passed through the centering holes of the disc and of the centering block 52, and the nuts 50, are screwed upon the screws 12. Then the stylus is so adjusted, that the point of the same is in engagement with the outer end of the record groove and the weight 26 is allowed to descend. The stylus is then forced positively to follow the undulations of the record and to set the diaphragm in vibration, so that the same sounds, which produced the original record, are plainly heard again through the ear tube.

In place of making the copy of the original record in metal, one can also make it of sealing-wax, for which one first makes a negative copy in metal and presses this upon a cake of softened sealing wax. The negative record can then be preserved for an indefinite time and be used at times as a stamp for the multiplication of the positive record in a cheap way.

Patent claims:

1. The inscribing of phonautographic records on a coating of semi-fluid ink or color spread upon a solid support, which is produced by first applying a coating of oil or fat to the support and then



spreading a thin layer of lamp-black upon the coating of oil.

2. An apparatus adopted for the use of the coating characterized under 1 for the reception of phonautographic records, characterized by:

a) A rotating drum G, which at one part of its circumference is broken by a recess B resembling a furrow and is provided with an elastic covering (of felt or the like), over which a strip of paper or the like is drawn and stretched by placing in the recess B two prismatic bars, *cd*, which are fastened to the ends of the strip, and by joining them to each other by the pin (*q*);

b) A two armed lever *s* fastened at the center of the diaphragm (or of the sonorous body) and attached pivotally to the casing (or at the edge) of the same, the free arm of which, pointed at the end, stands at right angles to the axis of the drum and approaches so far toward the same that its point strips off the covering of the paper strip in the direction of a line winding off as a straight or spiral line.

3. In the apparatus characterized under 2, the substitution for the paper strip carrying the record of a strip of flexible, but otherwise resisting material, in which the said record is copied by electrolysis or in other suitable manner, for the purpose of the reproduction of the recorded sounds and tones.

4. An apparatus adapted for the use of the coating characterized under 1 for the reception of phonautographic records, characterized by:

a) A horizontal disc (13), provided on its under surface with the said coating and made of resisting material, which, by means of a concentric driving wheel 9 connected with it, the vertical ro-



tating axis of which rests securely in a bearing (7) movable on a prismatic guide, stands in engagement with a shaft 16, which during its rotation moves in the direction of its length by automatic screwing and thereby takes with it the bearing (7) by means of adjusting collars or the like;

b) A stylus (29) consisting of elastic stiff parts joined with each other and in like manner as under 2b), yet elastically, joined with the diaphragm (or the sonorous body), the point of which removes the coating of the disc in the direction of the recorded line—and, after the loosening of the adjusting collars connecting the bearing (7) with the shaft 16, in a circle.

5. For the purpose of making an exact mounting of a disc constructed for the reproduction of the tones and sounds as a substitute for the disc (13) of the apparatus characterized under 4, the process of providing the latter disc in two places with holes and producing in the covering of the same in the manner characterized under 4b), a circle, which by photo-engraving is visible in the reproducing disc in like manner as the holes.

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Hereto is added 1 sheet of drawing.

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[Note: The 16 figures of the drawing of the above German patent are identical with the 16 figures of the drawing of English Patent No. 15232 of 1887, to Emile Berliner.] (See stipulation, *infra*, p. 999, 540 as to drawing of German Patent No. 45048.)



**Defendant's Exhibit, Translation of  
Berliner German Patent No. 47099,  
of May 16, 1888.**

**CERTIFICATE.**

That the annexed copy of the specification agrees with that which to the holder of Patent 47099 with the patent deed has been issued, is certified with the remark, that the patent has been cancelled in the rolls.

Berlin, November 6, 1905.

[Seal; Imperial      The President  
Patent Office] of the Imperial Patent Office.  
Haupt.

Imperial Patent Office. Letters Patent No. 47099.  
Class 21: Electrical apparatus and machines. Published April 26, 1889.

Emile Berliner of Washington (Columbia, U. S. A.)

Process for the recording of sounds. Addition to Patent No. 45948, of November 8, 1887. Patented in the German Empire from May 16, 1888. Longest duration: November 7, 1902.

In order to be able to transfer the sound-recording-line, inscribed by the apparatus shown in the chief patent upon a non-resisting layer, directly to the resisting support of this coating itself, one can make use of the etching process. In this process, when one heretofore made use of the process "for transferring inscriptions by etching to a resisting material" one employed a fluid etching ground layer of wax, which one made fluid for this purpose through heat. An etching ground made in this manner possesses, however, even if it is put on in a very thin layer, so great a toughness and clings by reason thereof so tenaciously to the surface to be etched, that it requires a not inconsiderable



erable effort to get out of such an etching ground suitable lines for the etching.

Such an etching ground is, therefore, not useful for the present purpose, in which it acts for the production of a record without the use of force, and the use of the etching process for the production out of this ground of a record capable of being reproduced in resisting material was not heretofore possible.

The present invention relates now to the process for the making of an etching ground, which does not show this difficulty, but offers the possibility of the production of record inscriptions with the same sharpness as the lamp-black mentioned in the chief patent.

The new process rests:

1. Upon the discovery, that wax, paraffine, etc., poured out in a dissolved condition and hardened through the evaporation of the solvent, shows a very small cohesion and as small adhesion to the surface covered with it.

2. Upon the discovery, that the slight contamination of the etching ground through the taking up of dust fibre from the air loses its troublesome effect, appearing in the making of the record inscriptions, if one immediately before the recording of the sounds puts this etching ground in a moist condition by pouring upon it concentrated alcohol.

One obtains a good etching ground, if one dissolves beeswax at a moderately high temperature in benzine so far that one obtains thereby a saturated solution. This is then filtered and care is taken thereby to free the same as much as possible from the dust present in the air. This solution is spread uniformly upon the surface to be etched which is previously smoothly polished, cleaned and dried, and then the solvent (benzine) is permitted



to evaporate which it does within one or two minutes.

The result of this process is an exceedingly delicate film adhering to the surface to be etched, which offers to the recording stylus of the recording apparatus described in the chief patent no perceptible mechanical resistance; indeed, the delicacy of this film is so great that it is very perceptibly disturbed by stroking it with a camel's hair brush, so that it is then no longer useful for its intended purpose.

In order to lessen somewhat this exceedingly great sensitiveness of the film and at the same time to increase its resistance to the etching agents subsequently employed, it is recommended to coat this film with still a second, produced in like manner, which, nevertheless, does not perceptibly increase the mechanical resistance of the etching ground to the recording stylus.

It has been mentioned, that it is necessary carefully to protect the material of the etching ground up to the time of its hardening from the dust of the air; but experience has taught that it is almost impossible to maintain this absolutely free from fine filamentary particles of dust. Although these almost unavoidable fine particles of dust are so fine that even with the most careful examination they escape the naked eye, still the same cause trouble in the production of the record.

But if the etching ground is not perfectly free from dust fibres, the same will adhere to the recording stylus and be by it drawn through the newly formed grooves, whereby the latter obtain uneven edges which seriously impair the accuracy of the record.

Numerous experiments led to the discovery, that this difficulty is entirely overcome, if the etching ground during the recording is put in a moist con-



dition by a previous moistening with concentrated alcohol. The alcohol evaporates, it is true, very quickly, but still not quickly enough to disappear entirely before the record has been recorded, and this record shows now no unevenness of any kind; the lines are, moreover, as sharp and defined as if they had been made by a graver, and the point of the recording apparatus appears as clean as if the filamentary particles had entirely disappeared.

The principal of this phenomenon is not wholly cleared up; it may be that the fine particles of dust are hereby forced against the walls of the record grooves and by these held fast. Beside this result the alcohol also still acts as a kind of lubricator for diminishing the friction of the recording stylus.

Since the etching ground made in the manner described is exceedingly thin and entirely colorless, so the record engraved in the same is almost invisible to the naked eye; but since it is desirable to examine the record before the etching, it is, therefore, recommended to color the etching ground before the recording of the record. This can be accomplished by exposing the etching ground to the cold smoke of a weak smoking flame, for example, of burning camphor, so that a very light deposit of lamp-black is made upon the etching ground and the record inscriptions are afterwards visible as pale lines upon a gray ground.

Care must be taken in this blackening, that the etching ground is not held near to the flame, so that the same does not begin to melt, since otherwise the peculiar consistency of the same is entirely changed.

The prepared phonautographic support can be preserved indefinitely and is at all times in useful condition.

The recording of the sound record is accomplished in exactly the same manner, as when the



record supports are covered only with the half fluid ink, not useful as an etching ground, mentioned in the chief patent.

For the etching of the phonautographic record into the resisting support of the etching ground, one can, indeed, use the usual acids common for such purpose as nitric, hydrochloric, etc., for metals and fluoric acid or the fumes thereof for glass; here, however, it should be considered that in the etching hydrogen gas becoming free collects along the record lines and, especially on the edges of the same, forms a bar against further action of the acid.

In the ordinary process of etching, moreover, one can render this development of gas harmless by a brushing from time to time of the surface. But such a brushing of the delicate etching ground used in the present case would be impracticable, since no brush material exists that is sufficiently delicate not to injure the etching ground. For this reason it is advisable so to choose the etching agent that the hydrogen gas at the moment of becoming free is absorbed by the material to be etched. If the record support consists, for example, of zinc, and one uses chromic acid as an etching agent, no accumulation of gas bubbles takes place.

The records inscribed in such manner in resisting material can, without further preparation, be used directly for the reproduction of the recorded sounds. Also one can make of the same by electrolysis as great a number of copies as one pleases; in this case it is, however, necessary, first to polish the etched record, before one puts the record support into the electrical bath. Such a polishing one can obtain through a slight pressing of a pointed burnishing tool into the record-groove, while one for this support holds with one hand the burnishing tool in the groove and with the other sets the record support in rotation. In this manner the tool is guided by the record groove itself, while the



slight granular structure of the same is polished in a few moments without the characteristic of the groove suffering any damage whatever.

Instead of a special burnishing tool, the reproducing stylus of the recording apparatus can also itself be used, the point of which usually consists of a hard metal, as iridium or the like. In this case, after one or two uses of the record for reproduction, the burnishing is effected.

**Patent-claim:**

In an apparatus for the recording and reproducing of sounds by the method characterized in the chief patent No. 45,048, the substitution for the half-fluid ink, characterized in claim 1 of that patent, of an etching ground which consists of a saturated solution of wax, paraffine (or like substances slightly sensitive to acids) in a solvent readily evaporated, as benzine, and the moistening of the same immediately before its use, as a record surface, with strong alcohol, for the purpose of lessening as much as possible the resistance of the etching ground against the recording stylus, as well as of making possible the inscribing of a very sharp record and thereby the direct production of a record of resisting material by etching for the reproduction of the sounds.

**Defendant's Exhibit, Translation of  
Berliner German Patent No.  
53622, of November 20, 1889.**

**CERTIFICATE.**

That the annexed copy of the specification agrees with that which to the holder of patent 53,622 with the patent deed has been issued, is certified with



the remark, that the patent has been cancelled in the rolls.

Berlin, November 6, 1905,

(Seal; Imperial  
Patent Office.)

The President  
of the Imperial Patent Office.  
Haupt.

Imperial Patent Office. Letters Patent No.  
53,622. Class 42: Instruments.

Published September 17, 1890.

Emile Berliner of Washington (Columbia, U. S.  
A.)

Improvement upon the process and apparatus  
protected by Patent 45048, for the recording and  
reproducing of sounds.

Second addition to Patent No. 45048 of Novem-  
ber 8, 1887. Patented in the German Empire from  
November 20, 1899. Longest duration: November  
7, 1902.

In the chief patent No. 45048, as in the first pat-  
ent of addition No. 47099, there is described an ap-  
paratus for the recording of sounds, in which a  
stylus, set in vibration by a diaphragm in like di-  
rection as the diaphragm itself, traces upon a drum  
or plate revolving before the stylus and provided  
with a coating according to the process protected in  
the said patent, light undulatory lines, which can  
then be transferred for the reproduction of the  
sound by the like stylus and the like diaphragm, so  
that neither for the recording nor for the repro-  
ducing of the sound is an operation of engraving or  
other destruction of the means serving for the re-  
cording necessary.

The present invention relates to an instrument  
in the part of the apparatus performing the repro-  
duction and is that shown in the drawing in Figure



1 in a front view and in figure 2 in a vertical cross-section.

Upon the casing *cc'*, which holds between its parts the diaphragm *b* of mica, metal, etc., in such manner that the diaphragm can vibrate freely, is a spring *aa'* consisting of flat steel with its one end fastened, while the other end carrying the stylus can vibrate freely.

This flat spring can be bent somewhere about the middle at  $90^\circ$ , so that the part fastened to the casing extends with its flat part parallel to the diaphragm, while the free end of the spring stands with its principal face perpendicular to the diaphragm. The connection between the spring and the diaphragm is by means of a pin *m* which can be connected with the spring by means of an adjusting screw *f* passing through a metal block *c*, which on its part is made fast to the spring *aa'* and carries the perforation for the metal pin *m*. There is upon the diaphragm, for strengthening the place where the perforation is for the passage of the pin *m*, a small metal plate *o* made fast on one side, while on the other side a nut *n* is screwed upon the metal pin *m* which at this place is provided with screw threads. By an insertion of the adjusting screw *f* with the metal block *c* at one or another point of the metal pin *m*, the tension, which exists between the spring and the diaphragm, can be regulated and at a suitable strength found by trial this tension is permanently fixed.

The reproducing stylus proper is not applied to the spring *aa'*, but consists of a special needle or spike *k*, which in a metal block *h* is held fast by an adjusting screw *i* or screwed in, which metal block is then in turn made fast to the spring *aa'*. This arrangement makes it possible easily to take out the spike, change it and replace it by another.

With the casing *cc'* carrying the diaphragm



there is connected the tube *d*, which leads to the horn for the further reception of the sound. In order to obtain a dampening of the function of the spring, a ring of rubber *r* is inserted by means of the screw *g* by which the spring is made fast to the frame *cc'*, while the freely vibrating end of the spring is surrounded by a ring of rubber *s*.

The method of operation of the apparatus remains the same as that shown in the chief patent and the first patent of addition.

Patent-claim.

The replacing of the two armed lever (*s*) protected by claim 2b of the chief patent No. 45048, and of the recording stylus (29) protected by claim 4b of the same, by a spring (*aa'*) carrying the stylus for the reproduction of the sound, which with the one end is made fast to the casing (*cc'*) enclosing the diaphragm, while the other end of the same can vibrate freely, so that the vibrations communicated to the latter are carried over by means of the pin (*m*) connecting the spring and the diaphragm at right angles to the surface of the diaphragm.

Annexed is 1 sheet of drawing.



Kopie der Patentschrift 53622.

Emile Berliner in Washington. (Columbia, V. St. A.)  
 Steuerung an dem durch das Patent 45048 geschützten Verfahren und  
 Apparat für das Registriren und Wiederhervorbringen von Tönen.

Fig. 1.

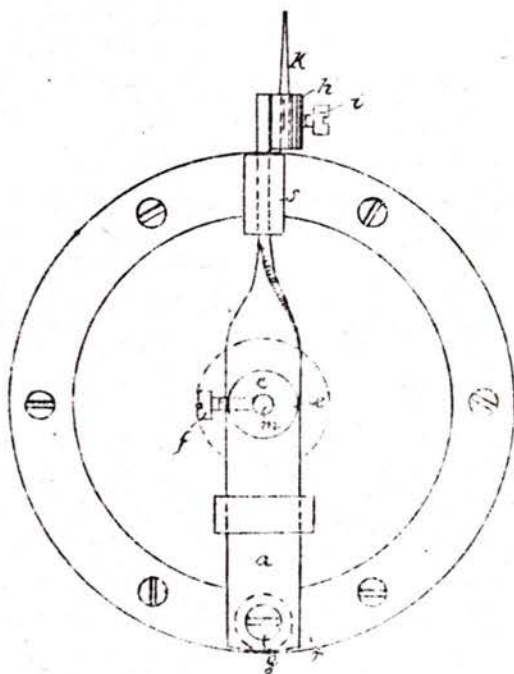
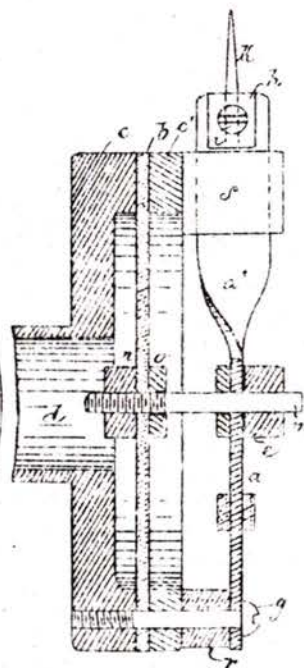


Fig. 2.





## DOMINION OF CANADA.

## PATENT (cut) OFFICE.

Certified that the annexed is a true copy of a Patent registered in the Patent Office under number 41901 granted to Emile Berliner and bearing date the Eleventh day of Feb., 1893, for "Improvements in Gramophones" with true copies of the specification and drawings remaining on record in this office, duplicate copies of which were attached to the Patent above mentioned.

(Seal.)

Inventions Patent Office, Department of Agriculture Canada Bureau des Brevets D'Invention.)

AS WITNESS the seal of the Patent Office hereto affixed at the City of Ottawa in the Dominion of Canada this Nineteenth day of October. In the year of our Lord on thousand nine hundred and five.

GEO. F. O'HALLORAN.

## DOMINION OF CANADA.

(cut)

41901.

To all to whom these presents shall come

Whereas Emile Berliner, Physicist, Assignee of Werner Suess, Mechanician, both of Washington, District of Columbia, United States of America, has petitioned the Commissioner of Patents, praying for the grant of a Patent for alleged new and useful Improvements in Gramophones, The said Werner Suess, having assigned to the said Emile Berliner, the right of obtaining the Patent and the exclusive property in and to the said invention, a description of which invention is contained in the specification, of which a duplicate is hereunto attached, and made an essential part hereof, and has elected his domicile at Ottawa, Ontario,



in Canada, and has also complied with the other requirements of the Patent Act Chap. 61, Revised statutes of Canada, and the Acts amending the same.

Now Therefore the present Patent grants to the said

Emile Berliner,  
his executors, administrators, legal representatives and assigns, for the period of Eighteen Years from the date of these presents, the exclusive right, privilege and liberty of making, constructing and using, and vending to others to be used, in the Dominion of Canada, the said invention, subject nevertheless to adjudication before any Court of competent jurisdiction.

Provided, that the grant hereby made is subject to the conditions contained in the Acts aforesaid.

The partial fee required for the term of six years having been paid to the Commissioner of Patents, this Patent shall cease at the end of six years from date, unless at, or before the expiration of the said term, the holder thereof pay the fee required for the further term or terms as provided by law.

In Testimony Whereof, I have hereunto set my hand and caused the Seal of the Patent Office to be hereunto affixed, at the City of Ottawa, in the Dominion of Canada, this Eleventh day of February in the year of our Lord one thousand eight hundred and ninety-three.

Countersigned

Sigd. A. R. Angers.  
Commissioner of Patents.

Sigd. R. Pope.

Deputy Commissioner of Patents.



**Specification.****TO ALL WHOM IT MAY CONCERN:**

BE IT KNOWN that I, WERNER SUESS, of the City of Washington, in the District of Columbia, U. S. A., mechanician, having invented certain new and useful improvements in Gramophones, I do hereby declare that the following is a full, clear and exact description of the same.

Reference being made to the accompanying drawing, in which Fig. 1 is a perspective view of one form of reproducer shown in the supporting frame, with a sound-conveying tube, with the diaphragm and stylus, in operative relation to the record disc.

Fig. 2 is a perspective view of the pivotal bearing of the frame, with parts removed and broken away.

Fig. 3 is a plain view of another form of supporting frame for the reproducer, by which the stylus is caused to travel in a straight line across the record tablet; and Fig. 4 is an end view of the same with the counterweight removed.

Like numerals of reference indicate like parts all throughout the drawings.

My invention has reference to improvements in the reproducing apparatus adapted for use in the method of recording and reproducing sounds heretofore invented and published by Emile Berliner. The whole apparatus used for the practice of the said method has been called the "Gramophone," and in this class of sound-recording and reproducing apparatus, the record is ordinarily produced on the face of a rotating disc as a volute band consisting of a sinuous or undulating groove of even depth. In the production of this record, a recording stylus is made to travel over the face of the rotating disc from the outer circumference toward the center in a straight radial path. The repro-



duction of the recorded sounds is effected by giving to a reproducing stylus vibratory movement by and in accordance with the sinuosities of the record groove, and these vibratory movements being transmitted to a diaphragm, vibrations of the latter give rise to sounds which are copies of the sounds originally uttered against the recording apparatus.

With the view of intensifying the sound emitted by the reproducer, and more especially of directing the same to the listener or listeners, I use a funnel-shaped tube, on the contracted end of which the reproducing stylus and diaphragm are mounted, while the open flaring end of the tube is directed toward the listener or listeners. This flaring sound-conveyer thus becoming an integral part of the reproducer, must have all the mass movements of the stylus and diaphragm; and being of considerable weight, it must be so supported and balanced that the recording stylus will bear with light but sufficient pressure upon the record tablet.

The best results are obtained if the reproducing stylus is made to travel in a straight radial line across the face of the record tablet, substantially in the manner in which the recording stylus has traveled in producing the record.

The main features of my present invention, therefore, have reference to the means for supporting and counterbalancing the sound-conveying tube, with its attached diaphragm and reproducing stylus, and for making the path of the stylus across the face of the record disc as nearly as practicable a straight radial line.

The stylus engaging with its point the record groove, is controlled by the walls of the latter, and as will be hereinafter more fully shown, I rely upon this control of the stylus by the walls of the record groove for the movement of the stylus across the face of the disc, there being no positive feeding mechanism for thus moving the stylus.



Referring now to Fig. 1, there is shown a base plate 1, which may be secured by screws or otherwise, to any suitable support, such for instance, as a table. Erected on this base plate is a standard 2, on one edge of which are laterally projecting eyes 3, forming guides in which turns a vertical shaft or pivot 4. This shaft is stepped at the lower end in a bearing 5, in the base plate, and at the upper end, has secured to or formed on it, a head 6, which, as shown more clearly in Fig. 2, consists of a flat plate, to the center of which the shaft 4, is attached.

This head 6, serves as a support for a frame 7, consisting of an end piece 8, two parallel side pieces 9, secured at one end to the end piece by screws, as shown, or otherwise, and a rod 10, joining the other ends of the side pieces 9. Mounted in the side pieces 9, are pointed screws 11, projecting through nuts therein, and entering oppositely arranged seats (not shown) in the ends of the head 6, and forming a pivotal bearing for the frame 7, around which it may turn in a vertical plane at right angles to the axis of the shaft 4.

It will now be understood that the frame 7, may be moved in any direction, the shaft 4 and pivot screws 10, constituting a universal joint for the same. The rod 10, carries one end of an arm 12, secured rigidly thereon by a jam nut 13, which clamps the said arm firmly against a flange 14, on the rod, which latter is screw-threaded, as shown, for the reception of the nut 13.

The arm 12 is stiffened by longitudinal side ribs 15, and terminates at the free end in a head 16, on one side of which is secured a diaphragm holder 17, carrying a diaphragm 18; and on the other side of the head there is secured a flaring socket 19, communicating at its reduced end with a chamber (not shown) at the rear of the diaphragm.



Attached to the diaphragm is a stylus 20, mounted for lateral vibration and together with the said diaphragm, forming a sound reproducer. The construction of the stylus and the mounting therefor, form no part of the present invention, and are, therefore, not specifically described herein. The point of the stylus rests normally in the record produced on the face of a disk-tablet 21, which is mounted for rotation upon a disc carried by a vertical shaft 22, similar to the shaft 4, before described.

As shown in Fig. 1, the shaft 22, has at its upper end a thumb-nut 23, by means of which the tablet is clamped thereon, and the said shaft is passed through eyes 24 (one only being shown) on a standard 25, and stepped in a bearing 26, in a base plate 27, on which the standard is erected.

The lower end of the standard is extended laterally on the plate 27, as shown at 28, and terminates in an upturned end 29, carrying at its upper end and below the level of the tablet, a bearing 30, for a horizontal shaft 31, which latter is provided with a crank 32, at the outer end, and a friction-wheel 33, at the inner end, which wheel engages the under side of the tablet supporting disc, which is not visible in the drawing.

It will now be understood that when the shaft 31, is rotated by means of the crank 32, the friction-wheel 33, engaging the tablet support will cause the latter to rotate and carry successive portions of the record under the stylus to reproduce the sounds, in a manner described in the aforesaid publications.

The mechanism for supporting and rotating the tablet may be of any suitable construction and entirely different from that shown, such construction being by no means an essential feature of my invention.



Secured to the end piece 8, of the frame 7, is a rod or arm 33', extending in a direction opposite to that of the arm 12, and carries a weight or block 35; this weight may be adjusted upon rod 33', and clamped in any desired position on a thumb-screw 36.

Attached to a short stem erected on the end piece 8; and over the shaft 4, is a semi-circular bracket 37, on which rests the funnel-shaped sound conveyer 38, the smaller end of which enters the socket 19. It will be readily understood that the sound conveyer supported in the manner described, together with the diaphragm and stylus, carried in the mounting attached to the arm 12, may be moved laterally around the axis of the pivot shaft 4, and vertically around the axis of the frame 7. By reason of these two movements, the stylus may be made to approach toward or recede from the axis of the rotating tablet, and in this manner traverse every portion of the surface of the said tablet; or it may be swung aside and entirely removed therefrom.

The operation of an apparatus so constructed, is as follows:

The tablet 21, containing a sound record in the form of a convolute sinuous or wavy groove, produced in the manner set forth in the aforesaid publications, is mounted on the supporting disc carried by the shaft or spindle 22. The weight 35 is adjusted to nearly counterbalance the arm 12, and parts carried thereby, so that the stylus rests lightly, but with sufficient pressure on the tablet with its point in the record groove.

The tablet is now rotated and the sinuous groove thereon vibrates the stylus, which in turn vibrates the diaphragm in accordance therewith, and thus produces sound waves, which latter are directed toward the listener by the sound conveyer 38. As the rotation of the tablet is continued, the convolu-



tions of the record groove will cause the stylus to be slowly drawn across the tablet, turning the entire support of the reproducing apparatus on its pivot bearing, the said stylus moving along a slightly curved path over the said tablet.

When placing a tablet in position, or on removing it therefrom, it is necessary to move the reproducer out of operative relation thereto; and for this purpose, the supporting frame is swung on the horizontal and vertical pivots to some position away from the tablet, when it may be lowered until a ..... leg 38', which depends from the arm 12, rests upon the table on which the apparatus is secured.

It will be understood that the counter-weight may be adjusted to cause the stylus to bear with any desired degree of pressure on the tablet.

Referring now more particularly to Figs. 3 and 4, there is shown a standard or post 39, which is fixed to a table or other support, and terminates at the upper end in a yoke 40, having two upturned parallel ends 41, each carrying an inwardly projecting pointed screw 42, extending through a suitable nut formed therein. The pointed ends of these screws enter suitable seats on opposite sides of a plate 43, and constitute a horizontal pivotal bearing on which the said plate may be rocked. The plate 43, has an arm 44, formed on it and extending centrally from one side, at right angles to its axis, and it also has another arm 33', similar to that shown in Figs. 1 and 2, extending in a direction opposite to the arm 44, being on the other side of the axis of the plate.

The arm 33' carries a sliding weight 35, similar in construction to that before described, and in a like manner serving as a counterweight.

Above the center of the plate 43, there is a semi-circular bracket consisting of two curved branching arms 45, arising from a block 46. Through



this block there is a perforation for a pivot-bolt 47, which extends downwardly through the plate 43, and there receives a nut 48, by means of which the bolt is secured to the said plate, and the head of the bolt engages the upper face of the said block 46. This bolt 47, also passes through a washer 49, resting directly on the upper surface of the plate 43, and through eyes formed in the ends of links 50, the said ends being interposed between the lower end of the block 46, and the washer 49, thus it will be seen that the bolt forms a vertical pivot around which the bracket 45, 46, and the links 50, may move, and also secures them to the said plate.

The outer ends of the links 50, are pivoted to opposing corners of an articulated frame 51, composed of links 52, of equal length, connected together at the ends by pivot pins 53, 54, 55, and 56, respectively, the pins 54 and 55, also connecting the links 50, to the frame at the points before mentioned.

The pin 56, also pivotally connects one end of a link 57, to the corresponding corner of the frame 51, the other end of the said link being pivoted to the outer end of the arm 44.

The frame 51, together with the links 50, and 57, constitutes a well known mechanical movement, by which a curvilinear movement is converted into a rectilinear movement, provided the various links have the proper relative lengths; which is supposed to be the case in this instance, and, therefore, no detailed description of the operation thereof is deemed necessary.

In the apparatus shown in Figs. 3 and 4, the arm 12, is replaced by the link movement or system, and in this case the stylus and diaphragm will be mounted on the outer or free end of the said link system, namely at 53, and the sound conveyer 38, indicated by dotted lines in Fig. 4, will rest on friction rollers 57, mounted in bearings formed in cut



away or recessed portions 58, of the bracket arms 45.

In the operation of this apparatus, the counter-weight 35, is adjusted in the manner before described, and the entire reproducer mechanism is moved to a position in which the stylus rests on the tablet, at the beginning of the record to be produced. Such position is indicated in Fig. 3, by the upper series of dotted lines, from which it will be seen that the frame 51, is of greater length than breadth.

As the record tablet is rotated, the volute record groove acting on the stylus, slowly draws it across the face of the tablet, as before explained, and turns the entire reproducing apparatus on its vertical axis or pivot 47. As the apparatus approaches the position coinciding with the vertical plane of the arm 44, of the plate 43, the link 57, moving through an arc of shorter radius than that of the links 50, tends to force the frame 51, outward, which tendency is resisted by the said links 50, and the consequent action of these two opposing forces is to shorten the length and increase the breadth of the said frame 51, until it assumes the square form shown in full lines, Fig. 3. As the movement of the stylus is continued beyond the central plane of the arm 44, the frame 51, will be again lengthened, as indicated by the lower series of dotted lines.

It will be understood that the length of the frame 51, decreases as the latter approaches a central position, and increases as it recedes therefrom, and in accordance with this change of shape of the said frame, its outer end (and the stylus thereon) will be carried to a constantly increasing distance from the pivot or axis of the apparatus, and the resultant of this constant longitudinal movement of the outer end of the frame, while the apparatus moves in an arc around its pivot, is to move the said end in a straight line.



When the reproducer stylus is moved over the record tablet in the manner stated, its path will coincide with the radius of such tablet, and the point of the said reproducer stylus will be at all times in the same relation to the record grooves as was the recorder stylus in producing such record.

In this operation, the sound conveyer must participate in the movement of the stylus toward and from the pivot 47, and it will, therefore, slide upon the arms 45, of the supporting bracket, and with a view of reducing the friction, the rollers 57, are provided.

#### CLAIMS.

Having now fully described my invention, I claim and desire to secure by letters patent:

1. In an apparatus for reproducing sounds from a rotating record tablet, a reproducing stylus mounted on a swinging lever system and having a rectilinear path over the record tablet substantially as described.
2. In an apparatus for reproducing sounds from a rotating record tablet having a record in the shape of a spiral groove, a reproducing stylus and diaphragm mounted on a swinging lever system and having a radial path over the record tablet, substantially as described.
3. In an apparatus for reproducing sounds the combination of a disc having a record of sounds in the shape of an undulatory, spiral groove upon its surface and rotating about its center, with a reproducing stylus guided by the record groove and mounted on a swinging lever system, so as to have a radial path over the record tablet, substantially as described.
4. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer



mechanism, consisting of a sound conveyer, and a diaphragm and stylus at one end of the said conveyer, of a system of links supporting the stylus end of the reproducer and proportioned and arranged as described for moving the stylus in a straight path across the record surface, substantially as described.

5. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism consisting of a sound conveying tube and a diaphragm and stylus mounted at one end of the tube, of a freely swinging supporting frame for the said reproducer mechanism, substantially as described.

6. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism consisting of a sound conveying tube and a diaphragm and stylus mounted at one end of the tube, of a freely swinging supporting frame for the said reproducer mechanism, and a weight adjustable on the said frame to counterbalance the reproducer mechanism, substantially as described.

7. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism consisting of a sound conveyer, and a diaphragm and stylus mounted at one end thereof, of a supporting frame for the said reproducer, loosely pivoted to swing freely both laterally and vertically, substantially as described.

8. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism, consisting of a sound conveyer, and a diaphragm and stylus mounted at one end thereof, of a supporting frame for the said reproducer, loosely pivoted to swing freely both laterally and vertically, and an adjustable counter-weight on the said frame, for determining the pressure of the



stylus on the record tablet, substantially as described.

9. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism, consisting of a sound conveyer, and a diaphragm and stylus at one end of the said conveyer, of a counter-weighted, pivoted frame for supporting the reproducer mechanism and provided with a system of laterally movable pivoted links connected at one end to the said reproducer mechanism, and at the other to a portion of the supporting frame fixed against lateral movement, substantially as described.

10. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism, consisting of a sound conveyer, and a diaphragm and stylus at one end of the said conveyer, of a system of links supporting the stylus end of the reproducer and constructed as described, for moving the stylus in a straight path across the record surface, and a pivoted bracket on which the sound conveyer rests, provided with anti-friction rollers on which the said conveyer travels longitudinally to participate in the movement of the stylus end of the reproducer, substantially as described.

11. In an apparatus for reproducing sounds from a rotating record-tablet, a reproducing stylus mounted to have a free movement over the surface of the record tablet, substantially as described.

12. In an apparatus for reproducing sounds from a rotating record tablet, a reproducing stylus mounted on a swinging lever system for carrying the stylus freely over the surface of the record tablet, substantially as described.

13. In an apparatus for reproducing sounds from



a rotating record tablet, a reproducing stylus mounted on a lever system permitting universal movement of the stylus, substantially as described.

In testimony whereof, I have hereto signed my name in the presence of two subscribing witnesses, at Washington, District of Columbia, April 13th, 1891.

Werner Suess,

Two Witnesses:

(signature of Inventor.)

Joseph Lyons,

Frank T. Chapman.

This is the original specification referred to in the affidavit of Werner Suess hereto annexed.

Sworn before me at Washington, District of Columbia, this thirteenth day of April, A. D. 1891.

Charles S. Drury,

[SEAL.]

Notary Public.

[Note: For stipulation as to drawing of Canadian Patent No. 41901 see *infra*, p. 576.]

#### DOMINION OF CANADA.

#### PATENT (cut) OFFICE.

CERTIFIED TO BE a true and correct copy of Assignment No. 20889 From W. Suess to E. Berliner. Recorded January 28th, 1893. Affecting Patent No. 41901.

(Seal; Inventions; Patent Office. Department of Agriculture. (cut) CANADA. Bureau des Brevets D'Invention.)

AS WITNESS the seal of the Patent Office hereto affixed at the City of Ottawa, in the Dominion of Canada this 27th day of October in the year of our Lord one thousand nine hundred and five.

Geo. F. O'Halloran,

Deputy Commissioner of Patents.



Patent Office

May 5

1891

CANADA.

**Assignment Before Issue.**

In consideration is the sum of One Hundred Dollars (\$100) to me paid by Emile Berliner, of the city of Washington, District of Columbia, U. S. A., I do hereby sell and assign to the said Emile Berliner all my right, title and interest in and to my invention, for new and useful Improvements in Gramophones, as fully set forth and described in the specification which I have signed preparatory to obtaining a patent in Canada, and I do hereby authorize and request the Commissioner of Patents to issue the said patent to the said Emile Berliner, in accordance with this assignment.

Witness my hand and seal, this Thirteenth day of April, 1891, at the city of Washington, District of Columbia.

(sgd) Werner Suess.

Witnesses:

Joseph Lyons.

Fannie Wise.

**DOMINION OF CANADA.****PATENT (ent) OFFICE.**

Certified to be true and correct copies of the Petition, Oath, Powers of Attorney, Receipt, Correspondence and Wrapper remaining of record in this office relating to application Serial No. 137454 filed on the 5th day of May, 1891, by Emile Berliner as assignee of Werner Suess, for "Gramophones," and which which matured to a Patent on the 11th day of February, 1893, and numbered 41901, and that the said patent expired on the 11th day of Febru-



ary, 1899, by reason of the non-payment of the fee for the second term of six years.

(Seal; Inventions. Pat. AS WITNESS the  
ent Office. Department of seal of the Patent Of  
Agriculture (cut) CAN- fice hereto affixed at  
ADA, Bureau des Brevets the City of Ottawa in  
D'Invention.) the Dominion of Can-

ada this 28th day of  
October in the year of  
our Lord one thousand  
nine hundred and five.

Geo. F. O'Halloran,  
Deputy Commissioner of  
Patents.

O. K.

Patent Office,  
May 5, 1891.

CANADA.

#### PETITION.

#### TO THE COMMISSIONER OF PATENTS: OTTAWA,

The petition of Emile Berliner, of the City of Washington, District of Columbia, in the United States of America, physicist, sheweth:

That Werner Suess, of the City of Washington, District of Columbia, in the United States of America, mechanician, has invented new and useful improvements in Gramophones, not known or used by others before his invention thereof, and not being in public use or on sale, with the consent or allowance of the said Werner Suess, as such inventor, for more than one year previous to this application for a patent therefor in Canada.

That your petitioner, by an assignment, bearing date the 13th day of April, 1891, acquired the right



of obtaining a patent from—Werner Suess aforesaid, for the said invention.

Your petitioner, therefore, prays that a patent may be granted to him as the assignee of the said Werner Suess, for the said invention, as set forth in the specification in duplicate relating thereto, and for the purpose of the Patent Act your petitioner elects his domicile in the City of Ottawa, Province of Ontario.

Emile Berliner.

Washington, D. C., April 13th, 1891.

#### OATH.

City of Washington, }  
District of Columbia, }

I, Werner Suess, Mechanician, of Washington in the District of Columbia, make oath and say that I verily believe that I am the inventor of the new and useful improvements in "Gramophones" described and claimed in the annexed specification in duplicate relating thereto, and for which Emile Berliner solicit a patent by his petition dated April 13th, 1891.

And I further say that the several allegations contained in said petition are respectively true and correct.

(Signed) Werner Suess.

Sworn before me at Washington, in the District of Columbia, this Thirteenth day of April, 1891.

(Signed) Charles S. Drury,  
Notary Public.

#### POWER OF ATTORNEY.

To the Commissioner of Patents, Ottawa:

The undersigned, Werner Suess, of the City of Washington, District of Columbia, United States of America, mechanician, hereby appoints Joseph



Lyons of Washington, District of Columbia, U. S. A., his attorney with full power of substitution and revocation, to prosecute an application for patent in Canada, for improvements in Gramophones, filed May 5, 1891, No. 56823; to sign the drawings, to receive the patent and to transact all business in the Patent Office connected therewith.

Signed at Washington, D. C., this 23rd day of January, 1893.

Werner Suess.

In the presence of:  
E. Berliner.

R. C. M.  
K. J. M.

#### POWER OF ATTORNEY.

To the Commissioner of Patents, Ottawa:

The undersigned, Emile Berliner, of the city of Washington, in the District of Columbia, United States of America, physicist, hereby appoints Joseph Lyons, of the city of Washington, District of Columbia, United States of America, his attorney, with full power of substitution and revocation, to prosecute an application for new and useful improvements in "Gramophones"; to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at Washington, D. C., this Thirtieth day of April, 1891.

Emile Berliner.

In the presence of:  
Werner Suess.



Defendant's Exhibits.

173

Patent Office,  
May 5, 1891  
CANADA.

PATENT OFFICE, CANADA.

Received from Messrs. Berliner & Suess,

\$22.

No. 21325

Patent and Ass't Fee.

W. J. Lynch,  
Cashier.

Cashier's Office,  
May 5, 1891.

JOSEPH LYONS,  
MECHANICAL AND ELECTRICAL EXPERT  
SOLICITOR OF PATENTS,  
EQUITABLE BUILDING, 1003 F Street, N. W.,  
Cable Address, "Jolly".

Washington, D. C., May 2, 1891.

Hon Commissioner of Patents,  
Ottawa, Canada.

Sir:—

With even mail, under separate cover, Please receive the application papers of Werner Suess, for Improvements in "Gramophones", and enclosed herein please find an assignement of the invention from Werner Suess to Emile Berliner, together with a postal money-order for Twenty-two dollars (\$22) in payment of the application fee of Twenty dollars (\$20) and the fee for recording the assignment, of Two dollars (\$2).

—Very respectfully,

Joseph Lyons,  
Attorney for Emile Berliner.



Joseph Lyons,  
Mechanical and Electrical Expert,  
Solicitor of Patents,  
Equitable Building, 1003 F Street, N. W.  
Cable Address, "Jolly".

Washington, D. C., January 24,  
1893.

Hon. Commissioner of Patents,  
Ottawa, Canada.

Dear Sir:—

In the matter of the application of Werner Suess, No. 56,823, Filed May 5th, 1891, for Improvements in Gramophones, I herewith transmit the Power of Attorney of the inventor called for by communication from your Office, of January 5th, 1893.

Early action in this case is now respectfully solicited.

Your obedient servant,

Joseph Lyons,  
Attorney for Suess & Berliner.



ENDORSED.

T. M. C. PATENT No. 41901. COST OF COPIES.  
PATENT & SPECIFICATION, \$ SPECIFICA-  
TION, DRAWING, PETITION, OATH.

No. 56823.

DEPARTMENT OF AGRICULTURE,

PATENT BRANCH,

Washington, D. C.

---

May 2/5 1891

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E. Berliner assignee of W. Suess per  
J. Lyons, 1003 F St., N. W.

APPLICATION FOR PATENT FOR Gramo-  
phones.

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\$22.00 Model dispensed with (C. B. D.) 4/1/93.

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Action Ackn. by Cir: 1 Receipt mailed. Model &  
Power of Atty. called for May 8/91.

Action Continued.

4/1/93 Patent may issue

M. Pope

Deputy Comr. of Patents

Power of Attorney again called for

Jany. 5/93. Power of Atty. rec'd

Jany. 24/26/93. Ackn'd Jany. 27/93.

Asst. 20889 Rec'd. Jany. 28/93.

Patent dated Feby. 11/93.

" mld. " 18/93 with Asst.



## Translation of

## THE LAW OF FRANCE.

(From Patent Laws of the World, Collected, Edited and Indexed. By Alfred Carpmael, Solicitor, etc., and Edward Carpmael, B. A. Patent Agent, etc.) Second edition, Revised. London. William Clowes and Sons, Limited, 27 Fleet St. 1889")

## FRANCE. LAW OF THE 5TH OF JULY, 1844.

## Chapter I.

## GENERAL PROVISIONS.

Art. 1. Every new discovery or invention, in all departments of industry, confers upon its author, under the conditions and for the time hereinafter mentioned, the exclusive right of working for his own profit the said discovery or invention.

This right is established by deeds delivered by the Government, under the name of Patents of Invention.

Art. 2. The following shall, etc.,

Art. 3. The following are not patentable, etc.,

Art. 4. The duration of patents shall be five, ten or fifteen years.

Every patent shall be subject to the payment of a tax fixed as follows:

Five hundred francs for a Patent of five years:

One thousand francs for a patent of ten years.

Fifteen hundred francs for a patent of fifteen years.

This tax shall be paid by annuities of one hundred francs under penalty of forfeiture if the patentee allows any year to elapse without paying the tax.



Chapter II.

FORMALITIES RESPECTING THE DELIVERY OF PATENTS.

Section I.

Applications for Patents.

Art. 5.

Any person who shall wish to obtain a Patent of Invention must deposit under a sealed cover, at the office of the Secretary of the Prefecture in the department in which he is domiciled, or in any other department, on electing domicile there,—

1. His petition to the Minister of Agriculture and Commerce;
2. A specification of the discovery, invention, or application forming the subject of the patent applied for;
3. The drawings or specimens necessary for the comprehension of the specification; and,
4. A memorandum of the documents deposited.

Art. 6.

The application must be limited to a single principal object, with the details that constitute it, and the applications which shall be indicated.

It must mention the duration which the applicants wish to assign to their Patent within the limits fixed by Article 4, and must contain neither restrictions, conditions, nor reservations.

It must set forth a title containing a short and precise designation of the object of the invention.

The specification must not be written in a foreign language. It must be without alterations, or interlineations. Words erased must be counted and verified; the pages and references being initialed. It



must not contain any denomination of weights or measures other than those inserted in the table annexed to the law of the 4th July, 1837.

The drawings must be made in ink and to a metrical scale.

A duplicate of the specification and drawings must be added to the petition.

All documents must be signed by the applicant or by his attorney, whose power remains annexed to the petition.

#### Art. 7.

No deposit can be received except on the production of a receipt proving the payment of the sum of one hundred francs on account of the patent tax.

An entry made without charge by the General Secretary of the Prefecture on a special register, and signed by the applicant, shall prove every deposit, indicating the day and hour when the documents were delivered.

A copy of the said entry shall be delivered to the depositor on paying the cost of the stamp.

#### Art. 8.

The term of the Patent will run from the day of the deposit being made according to Article 5.

### Section II.

#### Delivery of Patents.

#### Art. 9.

Immediately after the registration of the petitions, and within five days from the date of the deposit, the Prefects are to transmit the documents under the seal of the inventor, to the Minister of Agriculture and Commerce, adding thereto a certified copy of the entry of the deposit, the receipt proving the payment of the tax, and, if there be one the power of attorney mentioned in Article 6.



## Art. 10.

On the arrival of the documents at the Ministry of Agriculture and Commerce they shall be opened, the petitions registered, and the patents delivered in the order in which the said petitions have been received.

Translation of  
THE LAW OF GERMANY.

(From Patent Laws of the World, Collected, Edited and Indexed. By Alfred Carpmael, Solicitor, etc., and Edward Carpmael, B. A. Patent Agent, etc.) Second edition, Revised. London. William Clowes and Sons, Limited, 27 Fleet St. 1889.")

Germany. LAW OF THE 1ST JULY, 1877.

## FIRST SECTION.

## Patent Rights.

## §1.

Patents are granted for new inventions which can be turned to account in trade.

The following are excepted:—

1. Inventions the use of which would be incompatible with the laws or public morals:
2. Inventions of articles of food (for nourishment or luxuries), of medicines and of substances produced by chemical process, so far as the invention does not relate to a definite method of producing such articles.

## §7.

The duration of a patent is 15 years; the term commences with the day following the day of appli-



cation. If an invention is an improvement upon another invention patented in favour of the applicant, the latter may apply for a patent of addition, which terminates with the patent for the original invention.

### THIRD SECTION.

#### Proceedings in Patent-matters.

##### §20.

The application for the grant of a patent for an invention must be made in writing to the Patent Office. For each invention a separate application is required. The application must contain the petition for the grant of a patent, and must point out with precision the object sought to be patented. In a separate document the invention must be described in such a manner that its practicability plainly appears to skilled persons. The necessary drawings, figures, representations, models and samples must be supplied at the same time.

The Patent Office will issue regulations respecting the other requisites of the application.

Up to the time of publication of the application, alterations in the description are permitted. With the application a fee of 20 marks (£1) must be paid for the cost of the proceeding.

##### §22.

If the Patent Office finds the application in due form, and that there is no objection to the granting of a patent, it will order the application to be published. From the date of publication, the subject of the application will provisionally have the protection of a patent in favour of the petitioner (§§1 and 5).

If the Patent Office is of opinion that, according to §§1 and 2, the invention is not patentable, the application will be rejected.



## §24.

After expiration of eight weeks from the day of publication (§23) the Patent Office will decide as to the granting of the patent. Until that date objections against the granting can be lodged with the Patent Office. They must be made in writing, giving the grounds, which can only be the assertion that the invention is not new, or that it comes under §3, part 2.

Before deciding, the Patent Office may summon and hear the interested parties; it may also cause the grounds of objection to be examined by persons skilled in any branch of technical science, and otherwise take steps for elucidating the matter.

## §26.

If the grant of the patent is decided upon, the Patent Office will cause a notice to that effect to be published in the Reichsanzeiger, and issue a document to the patentee.

If the patent is refused, this will also be publicly notified. Upon the refusal, the provisional protection will be held void.

## THE PATENT ACT OF CANADA.

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

## SHORT TITLE.

1. This Act may be cited as The Patent Act. 35 N., c. 26, s. 53.

## APPLICATION FOR PATENTS.

10. Every inventor shall, before a patent can be obtained, make oath, or, when entitled by law to make an affirmation instead of an oath, shall make an affirmation, that he verily believes that he is the inventor of the invention for which the patent



is asked, and that the several allegations in the petition contained are respectively true and correct.

2. In the event of the inventor being dead, such oath or affirmation shall be made by the applicant, and shall state that he verily believes that the person whose assignee or legal representative he is, was the inventor of the invention for which the patent is solicited, and that the several allegations in the petition contained are respectively true and correct.

3. Such oath or affirmation may be made before a minister plenipotentiary, *charge d'affaires*, consul, vice-consul, or consular agent, a judge of any court, a notary public, a justice of the peace, or the mayor of any city, borough or town, or a commissioner for taking affidavits, having authority or jurisdiction within the place where the oath may be administered. 55-56 V., c. 24, s. 2.

11. The applicant for a patent shall, for the purposes of this Act, elect his domicile at some known and specified place in Canada, and shall mention the same in his petition for a patent. 35 V., c. 26, s. 12.

12. The applicant shall, in his petition for a patent, insert the title or name of the invention, and shall, with the petition, send in a specification in duplicate of the invention, and an additional or third copy of the claim or claims. 56 V., c. 34, s. 1.

13. The specification shall correctly and fully describe the mode or modes of operating the invention, as contemplated by the inventor, and shall state clearly and distinctly the contrivances and things which he claims as new and for the use of which he claims an exclusive property and privilege.



2. Such specification shall bear the name of the place where, and the date when it is made, and shall be signed by the inventor, if he is alive, and if not, by the applicant, and by two witnesses to such signature of the inventor or applicant.

3. In the case of a machine, the specification shall fully explain the principle and the several modes in which it is intended to apply and work out the same.

4. In the case of a machine, or in any other case in which the invention admits of illustration by means of drawings, the applicant shall also, with his application, send in drawings in duplicate, showing clearly all parts of the invention, and each drawing shall bear the signature of the inventor, if he is alive, and if not, of the applicant, or of the attorney of such inventor or applicant, and shall have written references corresponding with the specification; but the commissioner may require further drawings or dispense with any of them, as he sees fit.

#### CONFLICTING APPLICATIONS.

19. In case of conflicting applications for any patent, the same shall be submitted to the arbitration of three skilled persons, two of whom shall be chosen by the applicants, one by each, and the third of whom shall be chosen by the commissioner or by the deputy commissioner or by the person appointed to perform the duty of that officer; and the decision or award of such arbitrators, or of any two of them, delivered to the commissioner in writing, and subscribed by them or any two of them, shall be final, as far as concerns the granting of the patent.

\* \* \* \* \*  
named by the commissioner, which shall be paid by the applicants jointly. 35 V., c. 26, s. 43, part.



**GRANT AND DURATION OF PATENTS.**

20. Every patent granted under this Act shall contain the title or name of the invention, with a reference to the specification, and shall grant to the patentee and his legal representatives, for the term therein mentioned, from the granting of the same, the exclusive right, privilege and liberty of making, constructing and using, and vending to others to be used, the said invention, subject to adjudication in respect thereof before any court of competent jurisdiction.

2. In cases of joint applications, the patents shall be granted in the names of all the applicants. 35 V., c. 26, s. 10, part, and s. 16; 36 V., c. 44, s. 5.

21. Every patent shall be issued under the seal of the Patent Office and the signature of the commissioner or of the deputy commissioner, and when duly registered shall be good, and shall avail the grantee and his legal representatives for the term mentioned in the patent. 56 V., c. 34, s. 2.

2. The commissioner may require that any patent before it is signed by the commissioner or by any other member of the Queen's Privy Council for Canada, acting for him, and before the seal hereinbefore mentioned is affixed to it, shall be examined by the Minister of Justice; and if such examination is so required, the Minister of Justice shall, accordingly, examine it, and if he finds it conformable to law, he shall certify accordingly, and such patent may then be signed, and the seal affixed thereto. 35 V., c. 26, s. 6, part, and s. 18.

22. The term limited for the duration of every patent of invention issued by the Patent Office shall be eighteen years; but at the time of the application therefor it shall be at the option of the applicant to pay the full fee required for the term of six



years, or the partial fee required for the term of twelve years. 55-56 V., c. 24, s. 5.

2. If a partial fee only is paid, the proportion of the fee paid shall be stated in the patent, and the patent shall, notwithstanding anything therein or in this Act contained, cease at the end of the term for which the partial fee has been paid, unless before the expiration of the said term the holder of the patent pays the fee required for the further term of six or twelve years, and obtains from the Patent Office a certificate of such payment in the form which is, from time to time, adopted, which certificate shall be attached to and refer to the patent, and shall be under the signature of the commissioner or of the deputy commissioner. 56 V., c. 34, s. 3.

3. If such second payment, together with the first payment, makes up only the fee required for twelve years, then the patent shall, notwithstanding anything therein or in this Act contained, cease at the end of the term of twelve years, unless at or before the expiration of such term the holder thereof pays the further fee required for the remaining six years, making up the full term of eighteen years, and obtains a like certificate in respect thereof. 55-56 V., c. 24, s. 5.

#### ASSIGNMENTS.

25. The patent may be granted to any person to whom the inventor, entitled under this Act to obtain a patent, has assigned or bequeathed the right of obtaining the same, or in default of such assignment or bequest, to the legal representatives of the deceased inventor. 35 V., c. 26, s. 8;—36 V., c. 44, s. 2.



## FORFEITURE OF PATENTS.

37. Every patent granted under this Act shall be subject, and be expressed to be subject, to the following conditions:—

(a.) That such patent and all the rights and privileges thereby granted shall cease and determine, and that the patent shall be null and void at the end of two years from the date thereof, unless the patentee or his legal representatives, or his assignees, within that period or any authorized extension thereof, commence, and after such commencement, continuously carry on in Canada, the construction or manufacture of the invention patented, in such a manner that any person desiring to use it may obtain it, or cause it to be made for him at a reasonable price, at some manufactory or establishment for making or constructing it in Canada;

(b.) That if, after the expiration of twelve months from the granting of a patent, or any authorized extension of such period, the patentee or patentees, or any of them, or his or their representatives, or his or their assignee, for the whole or a part of his or their interest in the patent, imports, or causes to be imported into Canada, the invention for which the patent is granted, such patent shall be void as to the interest of the person or persons importing or causing to be imported as aforesaid:

2. (a.) Any question which arises as to whether a patent, or any interest therein, has or has not become void: under the provisions of this section, may be adjudicated upon by the Exchequer Court of Canada, which court shall have jurisdiction to decide any such question upon information in the name of the Attorney General of Canada, or at the suit of any person interested:



3. (b.) This section shall not be held to take away or affect the jurisdiction which any Court other than the Exchequer Court of Canada possesses. 55-56 V., c. 24, s. 6.

2. Whenever a patentee has been unable to carry on the construction or manufacture of his invention within the two years hereinbefore mentioned, the commissioner may, at any time not more than three months before the expiration of that term, grant to the patentee an extension of the term of two years on his proving to the satisfaction of the commissioner that he was, for reasons beyond his control, prevented from complying with the above condition :

3. The commissioner may grant to the patentee, or to his legal representatives or assignee for the whole or any part of the patent, an extension for a further term not exceeding one year, beyond the twelve months limited by this section, during which he may import or cause to be imported into Canada the invention for which the patent is granted, if the patentee or his legal representatives, or assignee for the whole or any part of the patent, show cause, satisfactory to the commissioner, to warrant the granting of such extension; but no extension shall be granted unless application is made to the commissioner at some time within three months before the expiry of the twelve months aforesaid, or of any extension thereof. 35 V., c. 26, s. 28;—38 V., c. 14, s. 2;—45 V., c. 22, s. 1.

#### PATENT FEES.

39. The following fees shall be payable before an application for any of the purposes herein men-



tioned shall be received by the Commissioner, that is to say,—

	\$	cts.
Full fee for 18 years .....	60	00
Partial fee for 12 years .....	40	00
Partial fee for 6 years .....	20	00
Fee for further term of 12 years..	40	00
Fee for further term of 6 years....	20	00

THE LAW OF GREAT BRITAIN, IRELAND  
and THE ISLE OF MAN.

(From Patent Laws of the World, Collected, Edited and Indexed. By Alfred Carpmael, Solicitor, etc., and Edward Carpmael, B. A. Patent Agent, etc.) Second edition, Revised. London. William Clowes and Sons, Limited, 27 Fleet St., 1889")

GREAT BRITAIN, IRELAND and THE ISLE  
OF MAN: LAW OF 25TH AUGUST, 1883.

Sealing of patent.

12. (1) If there is no opposition, or, in case of opposition, if the determination is in favor of the grant of a patent, the comptroller shall cause a patent to be sealed with the seal of the Patent Office.

(2) A patent so sealed shall have the same effect as if it were sealed with the Great Seal of the United Kingdom.

(3) A patent shall be sealed as soon as may be, and not after the expiration of fifteen months from the date of application, except in the cases herein-after mentioned, that is to say—

(a) Where the sealing is delayed by an appeal to the law officer, or by oppositin to



the grant of the patent, the patent may be sealed at such time as the law officer may direct.

(b) If the person making the application dies before the expiration of the fifteen months aforesaid, the patent may be granted to his legal representative and sealed at any time within twelve months after the death of the applicant.

#### Date of Patent.

13. Every patent shall be dated and sealed as of the day of the application: Provided that no proceedings shall be taken in respect of an infringement committed before the publication of the complete specification: Provided also, that in case of more than one application for a patent for the same invention, the sealing of a patent on one of those applications shall not prevent the sealing of a patent on an earlier application.

#### Provisional Protection.

14. Where an application for a patent in respect of an invention has been accepted, the invention may during the period between the date of the application and the date of sealing such patent be used and published without prejudice to the patent to be granted for the same; and such protection from the consequences of use and publication is in this Act referred to as provisioned protection.

#### Protection by Complete Specification. Effect of Acceptance of Complete Specification.

15. After the acceptance of a complete specification and until the date of sealing a patent in respect thereof, or the expiration of the time for sealing, the application shall have the like privileges



## Defendant's Exhibits.

and rights as if a patent for the invention had been sealed on the date of the acceptance of the complete specification: Provided that an applicant shall not be entitled to institute any proceeding for infringement, unless and until a patent for the invention has been granted to him.

## Extent of Patent.

16. Every patent when sealed shall have effect throughout the United Kingdom and the Isle of Man.

## Term of Patent.

17. (1) The term limited in every patent for the duration thereof shall be fourteen years from its date.

(2) But every patent shall, notwithstanding anything therein or in this Act, cease if the patentee fails to make the prescribed payments within the prescribed times.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

vs.

LEEDS & CATLIN COMPANY.

In Equity.  
No. 8797, 8798.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

vs.

THE TALK-O-PHONE COMPANY.

In Equity.  
No. 8859, 8860.

State and County of New York, ss.:

T. COMMERFORD MARTIN being duly sworn,  
says:

During the month of August, 1888, and for some time prior thereto, I was an associate editor of the Electrical World, a weekly review then published in the City of New York, and at said time Mr. Joseph Wetzler was also an associate editor with me of the said Electrical World. At that time the office of the Electrical World was in the Potter Building, New York City. I have continued my connection with the Electrical World since that time down to the present day, the name of the publication now being, however, the Electrical World and Engineer, with offices at 114 Liberty Street in the City of New York.

My attention has been called to an article enti-



tled "The Improved Gramophone," published in the Electrical World for August 18, 1888 on page 80 thereof. Prior to August 18, 1888, Mr. Joseph Wetzler and I had known Mr. Emile Berliner. At the invitation of Mr. Emile Berliner, Mr. Joseph Wetzler and I visited Mr. Berliner in the City and County of New York. According to my present recollection we visited Mr. Berliner on the occasion stated, at the Union Square Hotel. As stated in the said article in the Electrical World for August 18, 1888, we visited Mr. Berliner on the occasion aforesaid, prior to August 18, 1888, and about a week prior to that date. Mr. Berliner invited us to his bedroom in the hotel for the purpose of exhibiting to us the improved gramophone. Mr. Wetzler and I went to Mr. Berliner's bedroom in the hotel at said time and thereupon Mr. Emile Berliner exhibited to us the recording and reproducing of sound by means of the gramophone. I recollect that by means of the gramophone reproducing machine, Mr. Berliner played or reproduced several songs and records, as stated in the said article in the Electrical World for August 18, 1888. The reproducing machine used by Mr. Berliner on the said occasion for the reproduction of sound from the said records is illustrated in the said article in the Electrical World for August 18, 1888, being designated as the "improved Berliner Gramophone." I recollect that the reproducing stylus connected to the diaphragm was permitted to rest by its own gravity in the reproducing-groove of the record, and that when the plate was made to revolve, it not only vibrated the diaphragm and produced the sound, but it also led the diaphragm-box across the disc from periphery to center.

My recollection of the reproducing gramophone accords with the description of it given in the said article in the Electrical World for August 18, 1888.



On the occasion aforesaid, Mr. Berliner presented me with one of the records used for reproducing sound upon the machine. The disc carrying the record was made to revolve by hand, the crank being turned by the hand and causing the disc to revolve, as shown in the illustration in said article in the Electrical World for August 18, 1888.

I do not know what has become of the record presented by Mr. Berliner to me upon that occasion. I recollect that the record had the date marked upon it. I recollect also that upon the said occasion Mr. Berliner demonstrated to us the manner of making a record. He poured a fluid preparation upon the surface of the disc, thus coating the surface of the disc, and then traced the record into this layer or coating, as set forth in the said article in the Electrical World for August 18, 1888.

The article entitled "The Improved Gramophone," published in the Electrical World for August 18, 1888 on page 80 thereof as aforesaid, was written by Mr. Joseph Wetzler above named. I remember the publication of the article, the occasion referred to, the presence of Mr. Berliner, Mr. Wetzler and myself, the reproduction of sound by Mr. Berliner and myself from records thereof, by means of the gramophone reproducing machine illustrated in the said article and operated as aforesaid, and the making of a sound record by Mr. Berliner as aforesaid, and the giving of the said record to me by Mr. Berliner upon the said occasion.

T. COMMERFORD MARTIN.

Subscribed and sworn to before me }  
this 10th day of November, 1905. }

Walter E. Holloway,  
[SEAL] Notary Public, No. 179,  
New York Co.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

vs.

LEEDS & CATLIN COMPANY.

In Equity  
No. 8797.

VICTOR TALKING MACHINE COM-  
PANY,

vs.

THE TALK-O-PHONE COMPANY.

In Equity  
No. 8859.

Kingdom of Great Britain,  
County of London,  
Consulate-General of the United  
States of America.

ss.:

Joseph Wetzler, being duly sworn, says:

During the month of August, 1888, and prior thereto, I was an associate editor of the Electrical World, a weekly review published in the City of New York, having its office in the Potter Building. Mr. T. Commerford Martin was at the time an associate editor of the Electrical World with me and prior to August 18, 1888, we had both been acquainted with Mr. Emile Berliner.

As an editor of the Electrical World, I wrote the article entitled "The Improved Gramophone,"



published in the Electrical World for August 18, 1888, on page 80. Prior to August 18, 1888, Mr. Emile Berliner invited Mr. Martin and me to witness the recording and reproducing of sound by means of the gramophone, and upon such invitation Mr. Martin and I, together with one or two other persons, whose names

visited Mr. Berliner in the City and County of New York during the week preceding August 18, 1888. According to my recollection we visited Mr. Berliner upon said occasion at the Union Square Hotel, and Mr. Berliner then and there invited us to his bedroom where he exhibited to us the recording and reproducing of sound by means of the gramophone. What took place upon that occasion I have correctly set forth in the said article entitled "The Improved Gramophone," published in the Electrical World for August 18, 1888, on page 80 thereof. Mr. Berliner reproduced for us several sound records by means of the gramophone reproducing machine illustrated in the said article. The sound records employed were the phonautographic records. Upon the said occasion Mr. Berliner demonstrated for us the process of making a phonautographic record by etching the record into metal. As stated in the said article, "He took a small disc of zinc, poured upon it a quickly evaporating fluid which left an exceedingly thin layer of spongy and fatty wax, traced into this layer a phonautographic record and etched the same with chromic acid. In less than 15 minutes, on examining the zinc plate through a magnifying glass, we observed the beautiful tracings of articulate speech as a line sunken below the surface of the metal with all its delicate waves in most pecu-



liar varieties as representing the various sounds of the human voice." The reproducing gramophone used by Mr. Berliner upon the said occasion is correctly described in the said article as follows:

"As shown in the accompanying engraving there is no gear or machinery of any kind except a small friction wheel which revolves the table having clamped down upon it the reproducing disc. The reproducing stylus connected to the diaphragm is permitted to rest by its own gravity in the reproducing groove of the record, and when the plate is made to revolve it not only vibrates the diaphragm and reproduces the sound but it also leads the diaphragm box across the disc from periphery to centre so that the record groove serves at the same time as a screw instead of a separate gear. The recording diaphragm and stylus are attached to a lever which is pivoted at a distance of about 18 inches from the centre line of the disc, and as it slowly swings across the disc it describes an arc of very flat amplitude."

I remember the occasion of our visit to Mr. Berliner in the City of New York prior to August 18, 1888. I remember the visit itself, at which Mr. Berliner, Mr. Martin, I and others were present. I remember the making of a phonautographic record on that occasion by Mr. Berliner, by the method described in the said article. I remember the reproduction of sound by means of the gramophone, as described in said article and by means of the reproducing machine illustrated in the said article, and I remember writing the said article entitled "The Improved Gramophone," and the



Affidavit of Joseph Wetzler. 197

publication of the said article in the Electrical  
World for August 18, 1888, on page 80 thereof.

JOSEPH W. WETZLER.

Subscribed and sworn to before me }  
this 9th day of November, 1905 }

[SEAL	Francis H. Trigout,
United States	Deputy Consul-
Consulate-	General of the
General,	United States of
London.]	America, at London.



February 18, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Bldg.  
Philadelphia, Pa.

Dear Sir:

In reply to your favor of February 16, I beg to say that I shall be pleased to let you have a copy of my record attacking the title of the American Gramophone Company to the Jones patent. The testimony is now being printed and I hope soon to be able to send you the copy requested. In the suit against the Leeds & Catlin Company the plea to the title will come on for argument soon. I am interested to know what may be the condition of the suit against your clients.

Very truly yours,

Louis Hicks.

March 2, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Building,  
12th above Chestnut Street,  
Philadelphia, Pa.

Dear Sir:

By reason of my absence from the city and pressing engagements I have been unable before to answer your favor of February 20, in regard to defendant's testimony on the plea in the suit of American Gramophone Company against Leeds & Catlin Company on the Jones patent. I was under the impression that the American Gramophone Company was suing the Victor Company on the Jones patent, although previously I had understood that some arrangement existed between the Victor and Graphophone Companies whereby the Victor Company could not be sued upon that



patent. I have recently been informed that the suit which you are defending is not against the Victor Company but against the Universal Company, which I understand is controlled by the Victor Company. This presents a rather complicated situation, because if the Victor Company control the Universal Company and if the Victor Company could not be sued on the Jones patent the Universal Company would have nothing to lose by defeat. I should be very glad indeed to join hands with the Victor Company if that Company is interested in over-throwing the Jones patent. I have collected what I believe to be valuable material and evidence in defence of suits brought on the Jones patent, but reflection makes me believe that it would be prejudicial to my clients to put that material and evidence at the disposal of counsel for use in other suits, unless I am fully informed of the precise situation and interests involved, and unless arrangements could be made so that the material and evidence could not be presented in the strongest possible manner. You will I am sure appreciate and understand the situation. It would not do for me to permit my material to go into your case at the very close thereof, if the proper foundation had not been laid in your case, and if the Universal Company is not for the reasons stated or for other reasons vitally concerned in the over-throwing of the Jones patent. Indeed if the Victor Company controls the Universal Company and if the Victor Company could not be sued on the Jones patent it would seem to me that the Victor Company and the Universal Company would be benefitted rather than injured by the sustaining of the Jones patent. Of course, I have no knowledge of my own and have merely heard what has been stated above; but Mr. Armstrong testified to something like this condition. As I personally



would like to join hands with the Victor Company, if circumstances permit, I trust that you will at once give me full information so that I may know how to act. Believe me,

Very respectfully yours,

Louis Hicks.

April 21, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Building,  
Philadelphia, Pa.

Dear Sir:

I received your favor of April 18th requesting adjournment of the argument of the demurrers in the four suits of the Victor Talking Machine Co. v. Leeds & Catlin Co. and v. The Talk-O-Phone Co. I am ready to argue these demurrers and am anxious so to do. I do not see how the demurrers can be reached for argument during the week beginning April 25th, unless the judge calling the calendar should hear only pleas and demurrers as Judge Wallace, for instance, sometimes does, and leaves the rest of the case coming on for final hearing for some Judge who does not sit in the Circuit Court of Appeals.

If the suits against the American Graphophone Co. by the Victor Co. and the suits of the American Graphophone Co. v. the Victor and Universal Cos. are to go over to the session of May 15th, I have no objections to our demurrers going over to that date. I am unwilling to do anything which would permit these cases coming on unexpectedly for final hearing to acquire precedence over any one of the four demurrers. I regret that I was not able to reply to your letter before, and I trust you will pardon the delay.

Very truly yours,

Louis Hicks.



June 14, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Building,  
Philadelphia, Pa.

Dear Sir:

I beg to acknowledge receipt of your favor of June 10, 1905, with reference to the demurrers in the suits of Victor Talking Machine Company *et al.* against Leeds & Catlin Company and against the Talk-O-Phone Company (four suits). I regret to learn that you are unwilling to join with me in a request to Judge Hazel to take these demurrers for decision without oral argument and upon printed briefs.

In my letter to you of April 21, I stated that I was unwilling to do anything which would permit the Victor suits against the Graphophone Company to acquire precedence over any one of the four demurrers. I repeated that statement to your assistant, Mr. Kennedy, when the equity calendar was called, and I also called your attention to my understanding with Mr. Kennedy in the statement of my letter of April 21. Nevertheless, the calendar was so arranged that the suit against the Graphophone Company was argued and the demurrers were not argued. I protest against this. Had the demurrers been put upon the calendar for argument when they should have been, they would have been argued and disposed of long ago.

In view of the agreement of December 8, 1903, between the Graphophone Company and the Victor Company, the submission of the demurrers in the four suits to Judge Hazel would be particularly appropriate and timely.

Very truly yours,

Louis Hicks.



Nov. 20, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.

Dear Sir:

With reference to the suits of the Victor T. M. Co. *et al.* against the Leeds & Catlin Co. and the Talk-O-Phone Co., I am waiting to receive from you a statement of your costs upon the overruling of the demurrers. I do not understand why you have not entered orders overruling the demurrers in order that the suits may be put at issue by the filing of answers and replications, and evidence taken under the issues. In my opinion the patents sued upon are, without question, invalid, and defenses proving the invalidity of the patents exist and were not put in evidence in the suit against the American Graphophone Co. I understand that your clients have been making misleading statements to the trade, and that you have been enjoined from so doing by Judge Hazel in the suit against the Graphophone Co. It will not do for your clients to delay in bringing the above suits to final hearing, and in the meantime to make misleading statements to the trade. If this continues I shall undoubtedly bring the matter before the Court for appropriate relief.

Very truly yours,

Louis Hicks.

Nov. 22, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.

Dear Sir:

I have your favor of Nov. 21, stating that you will forward to me a statement of the costs upon



the overruling of the demurrers. You must know that I cannot answer in the four suits of the Victor Co. against the Leeds & Catlin Co. and the Talk-O-Phone Co. until you have entered orders overruling the demurrers. Surely you do not mean seriously to say that the Judge's opinion is an order upon which I can act. It has been your duty to serve me with copies of your proposed orders overruling the demurrers with notice of settlement, the said orders to provide that defendants shall answer within thirty days from the entry of the orders, and either to tax your costs or to notify me of the amount thereof, in order that upon payment of costs within thirty days after the entry of the orders I may file answers on behalf of defendants. Because you failed to put the demurrers properly on the calendar for argument, great delay ensued before the demurrers appeared on the calendar, and because you are now omitting to do the things mentioned above, great delay is occurring in bringing the suits to issue.

Very truly yours,

Louis Hicks.

Nov. 22, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.

Dear Sir:

I beg to acknowledge receipt of copies of your two letters dated Nov. 17, 1905, to my client, the Talk-O-Phone Co. I have repeatedly informed you that, in my opinion, the Berliner patent No. 534,543 is invalid and void, and that if it ever had any validity, it has none to-day. Furthermore, I have informed you repeatedly that I have discovered evidence which, in my opinion, without question will prove the invalidity of the patent, and



I have also stated to you that the evidence to which I refer was not produced in the suit brought by your client, the Victor Talking Machine Co. against the American Graphophone Co. upon said patent. As you know, Judge Hazel in rendering his decision in said suit against the American Graphophone Co. suspended all relief pending appeal.

On Sept. 26, 1904, you brought suit on patent 534,543 against the Talk-O-Phone Co., and notwithstanding my repeated protests you have delayed, and are now delaying the prosecution of the suit. In view of your threatening letters to the trade and my client, which, in my opinion, are entirely without justification, and in view of my repeated statement to you that, in my opinion, patent No. 534,543 is invalid and void, I hereby notify you that unless the Victor Talking Machine Co. ceases from the sending of threatening circular letters and proceeds at once with the prosecution of its case against the Talk-O-Phone Co., in order that the question of the invalidity and nullity of the patent may, at an early date, be passed upon by the court, I shall forthwith apply to the court for appropriate relief. Your statement that the improved Talk-o-phone, operating by a mechanical feed-device, is an infringement of patent No. 534,543, supposing that said patent is not invalid and void, is untenable and without justification, since you must know that mechanical feed-devices anticipated the Berliner patent by many years. On behalf of the Talk-O-Phone Co., I desire to say that your clients will be held strictly accountable for any misrepresentation made by them with reference to the improved Talk-o-phone.

Very truly yours,

Louis Hicks,

Counsel for the Talk-O-Phone Co.



Nov. 29, 1905.

Horace Pettit, Esq.,  
604 Stephen Girard Bldg.,  
Philadelphia, Pa.

Dear Sir:

I have your favor of Nov. 27, requesting payment of costs upon the overruling of the demurrers in *Victor T. M. Co. et al.* against Leeds & Catlin Co. (two suits, Nos. 8797 and 8798). As it was only upon my urgent request that you entered the orders overruling the demurrers and sent me a statement of the amount of your costs, I did not suppose that you expected check by return mail, but that I should have a reasonable opportunity to request my clients to remit the amount. However, from your letter of Nov. 27 it would seem that you desired check at once. Hence I enclose my check to your order for \$30.35, being the amount named in your letter of Nov. 23. I have my answers in the suits well under way and shall file them at the earliest possible moment, as soon as the clerical work of copying can be done and signatures and verifications had. I have the first case to argue on the equity calendar for Dec. 4, and the first case in the Circuit Court of Appeals for Dec. 5. These are very important cases which have required very much attention, but I shall let nothing else interfere with the filing of the answers in these suits, in order that they may be at once brought to an issue and tried upon their merits.

Very truly yours,

Louis Hicks.



Mar. 16, 1906.

Horace Pettit, Esq.,

Counsel for Victor Talking Machine Co.,

604 Stephen Girard Bldg.,

Philadelphia, Pa.

Dear Sir:

The Talk-O-Phone Co. has referred to me copies of a circular letter signed and sent by you under date of March 7 and 10, 1906 to numerous customers of the Talk-O-Phone Co. You say that on behalf of your client you desire to call attention to the fact that you hold that the disc talking machines and records heretofore manufactured by the Talk-O-Phone Company is a clear infringement of the Victor Talking Machine Company's patents. You are well aware that the Talk-O-Phone Company has never manufactured records, and you also know that the Victor Talking Machine Company's patent for a record was recently overthrown by Judge Hazel in a decision filed Feb. 19, 1906, before the writing of your misleading and threatening letter.

With reference to the disc talking machines manufactured and sold by the Talk-O-Phone Co., you say that the Victor Talking Machine Company has now a suit pending against the Talk-O-Phone Co. for infringement of Berliner patent No. 534, 543, and that it is your intention promptly to move for preliminary injunction. If such has been your intention, why have you not made your motion instead of sending your threatening letters to the trade of the Talk-O-Phone Company? During the past year I have repeatedly protested against your delay in bringing your suit against the Talk-O-Phone Co. to a hearing, while you were prosecuting your suit against the American Graphophone Co. on the same patent under an



agreement between the Victor and Graphophone Companies, to the effect that if the Graphophone Co. should lose the suit, a license would be given by the Victor Co. to the Graphophone Co. to operate under the patent. I have also repeatedly informed you that in my opinion the Berliner patent No. 534,543 for gramophone is invalid, and that I am prepared to show the invalidity of the patent to the court. It is upon this Berliner patent that your suit against the Graphophone Co. was conducted and upon which you brought suit against the Talk-O-Phone Co. I desire to say that unless you move for preliminary injunction at once against the Talk-O-Phone Co. and make good your threat to the trade so to do, I will move the court to dismiss your suit against the Talk-O-Phone Co., by reason of your failure to prosecute the same. The Victor Talking Machine Co. will be held strictly accountable for the damage done to the Talk-O-Phone Co., by reason of the threatening letters and circulars heretofore sent to the trade. Why you prefer to intimidate the trade instead of making your motion for preliminary injunction is difficult to understand, unless it be that you yourself realize the invalidity of the patent upon the basis of which you make your threats.

In your letters to the trade you claim that the "mechanical feed" device by which the new and improved talk-o-phone operates is an infringement upon your said Berliner patent. You must know that your claim can have no reasonable basis, and that mechanical feed devices anticipated the Berliner patent by many years. The Talk-O-Phone Co. is prepared to show, first: that your Berliner patent No. 534,543 is invalid, and second: that the mechanical feed device is not an infringement of that patent, even if the patent were valid. I therefore, call upon you at once to make your motion



for preliminary injunction and to discontinue the sending of misleading and threatening letters to the trade.

Very truly yours,

Louis Hicks,  
Counsel for Talk-O-Phone Co.

Philadelphia, March 3, 1905.

Louis Hicks, Esq.,  
25 Pine Street, New York, N. Y.

Dear Sir:

I have your favor of the 2d inst., and contents noted. I would say that both the Universal Talking Machine Mfg. Co. and the Victor Talking Machine Company are fighting the suit on the Jones patent as hard as they know how, and mean to leave no stone unturned in the defense.

Of the two suits against this Company the suit which is now being prosecuted is the suit in the Southern District of New York, against the Universal Talking Machine Mfg. Company. Of course, if the patent should, for any reason, be sustained in this suit after appeal, a decree could very readily be had against the Victor Company, if it should be shown that they are using the same process. There is no agreement or understanding between the Victor Company and the American Graphophone Company, whatsoever looking to the bolstering up or sustaining of the Jones patent. On the other hand, we are using every effort to present as full and complete a defense in the Universal suit as possible.

All that it was my intention to ask you was to let me see a copy of your testimony taken in the suit on this patent against your client on your pleading, which testimony I understood would very shortly be filed in order to argue the plea, for which



reason I assumed you would have no objection to letting me see a copy of the same a little in advance. I was merely referring to such evidence as you may have produced concerning the title, or want of title in the A. G. Co. to the Jones patent.

Yours very truly,

Horace Pettit.

K.

Philadelphia, Apr. 18, 1905.

Louis Hicks, Esq.,  
25 Pine St., New York City.

Dear Sir:

I understand there will be a one week's session of the Circuit Court beginning April 25th, and a four week's session beginning May 15th.

I suppose it will be agreeable to you, if we agree to have our Leeds & Catlin and Talk-O-Phone demurrers set for argument at the session beginning May 15th. Will you kindly let me hear from you.

Very truly yours,

Horace Pettit.

K.

Philadelphia, April 22, 1905.

Re V. T. M. Co. vs. Leeds & Catlin.

V. T. M. Co. vs. Talk-O-Phone Co.

Louis Hicks, Esq.,  
25 Pine St., New York City.

Dear Sir:

Replying to your favor of the 21st inst. I beg to advise you that we have arranged to have the suits of the V. T. M. Co. vs. Amer. G. Co. and of the Amer. G. Co. vs. the Universal Co. heard at the



session beginning May 15th. I do not intend to try them during the week beginning April 25th.

In view of this, I understand that you have no objection to arranging to have our demurrers heard at the same session.

Very truly yours,

Horace Pettit.

K.

Philadelphia, June 10, 1905.

Victor Talking Machine Co., *et al.*

v. Leeds & Catlin Co.

Same v. The Talk-O-Phone Co.

Louis Hicks, Esq.,

25 Pine Street, New York City.

Dear Sir:

I regret very much that the demurrers in the above cases were not reached for argument upon the present equity calendar, and that they have to be postponed until fall. I doubt very much whether Judge Hazel would consider them under submission without argument, as these cases are among those which he has already formally continued until fall.

I prefer, at all events, to let the Court have the benefit of an oral argument.

Very truly yours,

Horace Pettit.

Philadelphia, June 15, 1905.

Louis Hicks, Esq.,

25 Pine St., New York City.

Dear Sir:

Referring to your favor of the 14th inst., would say that I regret very much, as stated before, that the cases could not be reached for argument on the



Equity calendar just concluded, I, of course, have nothing to do with the arrangement of the calendar, and the fact that the cases were not reached was, of course, the fault of neither of us. I was particularly anxious to have these demurrers argued at this Term of Court, but, as indicated in my last letter, while I think there is nothing in the points which you raise, I desired the opportunity of an oral argument, which, therefore, precluded submitting the demurrers on brief.

Very truly yours,

Horace Pettit.  
P.

Victor Talking Machine Company.  
Camden, N. J., March 6, 1906.

To the Trade :

We beg to advise you that we have just received a communication from our counsel, Horace Pettit, Esq., notifying us that the United States Circuit Court of Appeals, of New York, in our suit against the American Graphophone Company, filed an opinion, March 1st, 1906, in our favor, affirming the decision of Judge Hazel of the lower court, of September 21st, 1905, sustaining our fundamental Berliner patent, No. 534,543, for the combination of our disc talking machines and records and method of operating the same.

As the decision of this Court is final, we expect to at once proceed to enforce our rights by preliminary injunction against all infringers, including all manufacturers of infringing machines and records, who have not taken a license from us, and dealers in such infringing goods. We would call your attention to the fact that the American Graphophone Company has already taken a license, as also the Universal Talking Machine Manufacturing Company.

Yours very truly,

Leon F. Douglass,  
Vice-President.



Philadelphia, March, 7, 1906.

Messrs. J. P. Crotty & Co.,  
Minneapolis, Minn.

Gentlemen:

My client, the Victor Talking Machine Company, of Camden, N. J., has reason to believe that you are selling and handling, or about to sell and handle, disc talking machines and records manufactured and sold, and advertised for sale, by a company known as the Talk-O-Phone Company, having an office, among other places, in Toledo, Ohio.

On behalf of my client, I desire to call your attention to the fact that we hold that the disc talking machine and records heretofore manufactured by the Talk-O-Phone Company is a clear infringement of the Victor Talking Machine Company's patents, among other, the Berliner patent No. 534,543, issued February 19, 1895, for Gramophone. The disc talking machine manufactured and sold by the Talk-O-Phone Company is, we contend, a clear infringement of claims 5 and 35 of this patent, which have just been sustained by the United States Circuit Court of Appeals of New York, in a decision filed March 1, 1906, affirming the decision of Judge Hazel in the Court below in the suit of the Victor Talking Machine Company against the American Graphophone Company. The claims sustained cover the reproducing apparatus and method of operating the same, such as embodied in the said Talk-O-Phone machines for reproducing sound from disc records.

The Victor Talking Machine Company has now a suit pending in the United States Circuit Court for the Southern District of New York against the said Talk-O-Phone Company, for infringement of the said patent, which will be expeditiously prosecuted, and I would add that it is our intention to promptly move for preliminary injunction.



We also learn from certain advertisements of the Talk-O-Phone Company, that since the decision of the Lower Court of September 21, 1905, sustaining this Berliner Patent, No. 534,543, the Talk-O-Phone Company has been advertising and illustrating in its advertisements, a disc talking machine constructed and operated substantially in accordance with the said claims of the said Berliner Patent No. 534,543, with a so-called "mechanical feed" device, superadded, as we believe, in an attempt to evade the claims of this patent. We desire also to call attention to the fact that, as we understand this mechanical feed device, it can have no useful function to perform, and we believe it to be added merely as an attempt to evade our patent. We believe that this attempt will be regarded by the Courts as a mere evasion, and will be held to infringe the claims.

We desire to give you notice of this fact, as it is only fair that you should have knowledge that the Victor Company regards this Talk-O-Phone machine with the so-called "mechanical feed" for reproducing from disc records, which is being quite extensively advertised, as a clear infringement of its said patent, as well as the machine which the Talk-O-Phone Company has been heretofore manufacturing and selling, and that it embodies the principle and features of our said fundamental patent, notwithstanding certain statements made by the Talk-O-Phone Company to the contrary.

I will be pleased to give you further information relative to the decisions sustaining this patent, and to forward you a copy upon hearing from you, or your counsel.

I remain,

Yours very truly,

Horace Pettit.

The same to Keen Talking Machine Company,  
Philadelphia, Pa., dated March 10, 1906.

The same to Rogers Manufacturing Company,  
New York City, dated March 10, 1906.



## Order Denying Motion.

At a stated term of the Circuit Court of the United States, for the Southern District of New York, held in the court-room in the County of New York on the day of June, 1905.

Present—Hon. JOHN R. HAZEL, U. S. Judge.

VICTOR TALKING MACHINE COMPANY, *et al.*,  
Complainant,

VS.

TALK-O-PHONE COMPANY.  
Defendant.

Nos. 8859 and 8860  
on Berliner Pat-  
ents Nos. 534,543  
and 548,623.

VICTOR TALKING MACHINE COMPANY, *et al.*,  
Complainant,

VS.

LEEDS & CATLIN COMPANY,  
Defendant.

Nos. 8797 and 8798  
on Berliner Pat-  
ents Nos. 534,543  
and 548,623.

The suit of the Victor Talking Machine Company *et al.* against the American Graphophone Company on Berliner Patent No. 534543, having come on to be heard at final hearing, and having been argued at final hearing before me on June 5 and June 6, 1905, by counsel for complainants and defendant in that suit, and at the close of the argument on June 6, 1905, Louis Hicks, solicitor and counsel for defend-



Order Denying Motion.

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ants in the four above entitled suits against the Leeds & Catlin Company and the Talk-o-Phone Company, having moved the Court for permission to address the Court with reference to the contract of December 8, 1903, between the Victor Talking Machine Company and the American Graphophone Company appearing in the record in said suit between said two Companies; on reading and filing the annexed affidavit of Louis Hicks, verified June 8th, 1905, it is

Ordered that the said motion be, and the same hereby is denied.

U. S. Judge.



## CIRCUIT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

Complainants,

VS.

TALK-O-PHONE COMPANY,  
Defendant.

In Equity.

Two Suits Nos.  
8859 and 8860.  
Berliner Patents  
Nos. 534,543 and  
548,623.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

Complainants,

VS.

LEEDS & CATLIN COMPANY,  
Defendant.

In Equity.

Two Suits Nos.  
8797 and 8798  
Berliner Patents  
Nos. 534,543 and  
548,623.

State and County of New York, ss.:

Louis Hicks, being duly sworn, says: that he is a solicitor and counsel for the defendants in the above four suits in equity now pending undetermined in this Court upon the Berliner Patents above named; that each of the above four suits is at issue on demurrer; has been ready for argument at each session of the April, 1905, Term of this Court; that deponent is also solicitor and counsel for the above named defendants in two suits on the Jones Patent, brought by the American Graphophone Company; that the said two suits on the Jones Patent were argued on plea and demurrer before Judge Hazel on May 31, 1905; that in addition to



the foregoing six suits on the said Jones and Berliner patents there appeared on the same April, 1905, Term of this Court, a suit of the American Graphophone Company against the Universal Talking Machine Company on the said Jones Patent, ready for final hearing and the suit by the Victor Talking Machine Company, *et al.* against the American Graphophone Company on said Berliner Patent No. 534543, also ready for final hearing; that on motion of S. O. Edmonds, Esq., counsel for the American Record Company, against which a suit had been brought by the American Graphophone Company on said Jones Patent, His Honor, Judge Platt, deferred the argument at final hearing in the Graphophone Company's suit on the Jones Patent against the Universal Talking Machine Company, to the end that other parties defending suits upon the same patent should have an opportunity to present their defenses to suits based upon said Jones Patent; that the Universal Talking Machine Company is owned or controlled by the Victor Talking Machine Company; that on June 5 and 6, 1905, the suit of the Victor Talking Machine Company against the American Graphophone Company on said Berliner Patent No. 534543, was argued at final hearing; that it appeared upon the argument and from the record in said suit that a contract dated December 8, 1903, exists between the Victor Talking Machine Company and the American Graphophone Company with reference to said Jones and Berliner Patents; that deponent did not learn of the existence of that contract or the contents thereof, until said argument on June 5, 1905; that on March 2, 1905, deponent wrote to Horace Pettit, Esq., counsel for the Victor Talking Machine Company with reference to the suit pending against the Universal Talking Machine Company on the Jones Patent,



stating that he was informed that the Victor Talking Machine Company controlled the Universal Company, and that some agreement existed between the American Graphophone Company and the Victor Talking Machine Company by virtue of which it would not be to the interest of the Victor Talking Machine Company to defeat the suit brought by the Graphophone Company on the said Jones Patent, and requested information as to the precise situation and interests involved as a condition precedent to the giving by deponent to Mr. Pettit of material collected by deponent with reference to the said Jones Patent; that on March 3, 1905, Mr. Pettit replied to deponent's letter of March 2, 1905, which mislead deponent because Mr. Pettit made no mention of the contract of December 8, 1903, above mentioned, and said with reference to suit against the Universal and the Victor Companies on the Jones Patent as follows: "Of the two suits against this Company the suit which is now being prosecuted is the suit in the Southern District of New York against the Universal Talking Machine Company. Of course, if the patent should, for any reason, be sustained in this suit after appeal, a decree could very readily be had against the Victor Company, if it should be shown that they are using the same process. There is no agreement or undertaking between the Victor Company and the American Graphophone Company whatsoever looking to the bolstering up or sustaining of the Jones Patent. On the other hand, we are using every effort to present as full and complete a defense in the Universal suit as possible."

When deponent learned on June 5, 1905, of the agreement of December 8, 1903, it conclusively appeared to deponent that the suit between the American Graphophone Company and the Victor



Talking Machine Company on Berliner Patent No. 534543, was a suit in which the American Graphophone Company had nothing to lose and that the American Graphophone Company as well as the Victor Talking Machine Company would be benefited if the said Berliner Patent were held by the Court to be valid, and if infringement thereof were found; that it further appeared to deponent that the said suit was a suit which would not affect the American Graphophone Company if the patent were sustained, but would affect the competitors of the American Graphophone Company and the Victor Talking Machine Company by reason of the provisions of the Contract of December 8, 1903. That it appears from Paragraphs 3 and 4 of the said contract of December 8, 1903, that in case the said Berliner Patent is sustained against the Graphophone Company, the Graphophone Company shall assist the Victor Company in the prosecution of suits upon the said patent against other parties, and that in case the said Jones Patent is sustained in the suit of the Graphophone Company against the Victor Company the Victor Company shall assist the Graphophone Company in the prosecution of suits upon the Jones Patent against other parties. The other provisions of the contract of December 8, 1903, are of like purport and affect.

By reason of the premises and of such information as deponent had, deponent as solicitor and counsel for the defendants named, joined with Waldo G. Morse, representing other parties in interest, in a motion addressed to the Court, held by his Honor, Judge Hazel, for permission to address the Court with reference to said agreement of December 8, 1903, and for permission to file a memorandum in regard thereto. It being deponent's opinion that it was necessary for the protection of his clients, the defendants above named, to point out



to the Court the apparent purpose and effect of the agreement of December 8, 1903, and the protest of defendants above named against the entertaining by the Court of the said suit on said Berliner Patent in view of the circumstances disclosed by the agreement of December 8, 1903, and against any decision in such suit or the use of any decision in such suit as a basis for relief by way of preliminary injunction against other persons sued by the Victor Company upon said Berliner Patent. His Honor, Judge Hazel, in denying the respective applications of Mr. Morse and of deponent, stated that an entry might be made in the minutes of the Court, and in order that the position of these defendants may be made matter of record, the annexed order is hereby presented to the Court in order that it may be signed and filed at once among the other papers in the above entitled suits.

LOUIS HICKS.

Subscribed and sworn to before me }  
this 8th day of June, 1905. }

[SEAL.]

T. P. Dalton,  
Notary Public,  
Kings Co.

Certificate filed in New York Co.



At a stated term of the Circuit Court of the United States, for the Southern District of New York, held in the Court-room in the County of New York, on the day of June, 1905.

Present—HON. JOHN R. HAZEL, U. S. Judge.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

VS.

AMERICAN GRAPHOPHONE COM-  
PANY,  
Defendant.

On Berliner Patent  
No. 534,543.

The suit of the Victor Talking Machine Company, *et al.*, against the American Graphophone Company on Berliner Patent No. 534543, having come on to be heard at final hearing, and having been argued at final hearing before me on June 5 and June 6, 1905, by counsel for complainants and defendant in that suit, and at the close of the argument on June 6, 1905, Louis Hicks, solicitor and counsel for the Talk-o-Phone Company and Leeds & Catlin Company, having moved the Court for permission to address the Court with reference to the contract of December 8, 1903, between the Victor Talking Machine Company and the American Graphophone Company, appearing in the record in said suit between said two Companies; on reading and filing the annexed affidavit of Louis Hicks, verified June 8th, 1905, it is:

Ordered that the said motion be, and the same hereby is denied.

U. S. Judge.



June 10, 1905.

Hon. John R. Hazel,  
Care Hon. John A. Shields,  
Clerk United States Circuit Court,  
Post Office Building, New York.

Dear Sir:

I am in receipt from Louis Hicks, Esq., attorney for the defendant in the cases Victor Talking Machine Co., *et al.* vs. Leeds & Catlin Co., and Victor Talking Machine Co. *et al.* vs. the Talk-O-Phone Co., of a communication addressed to you, signed by Mr. Hicks, and dated June 12, 1905, submitting to you for your signature for filing a proposed order entitled in the above entitled cases, with an affidavit of Mr. Hicks attached, containing the statement of certain alleged facts in connection with another suit, viz.: Victor Talking Machine Co., *et al.* vs. American Graphophone Co., which latter case your Honor heard on final hearing on the 5th and 6th inst.

I desire to call your Honor's attention to the fact that the cases against Leeds & Catlin Co., and against the Talk-O-Phone Co., in which this order and affidavit are entitled, have not been before your Honor, and you cannot very well enter such an order, as suggested, in these cases. The proposed order submitted by Mr. Hicks, recites an application made by him to your Honor, for permission to address the Court in the case against the American Graphophone Co., which your Honor heard—the Talk-O-Phone Co. and against Leeds & Catlin Co. The motion referred to in the proposed order is entirely foreign to those last mentioned cases.

You will probably recall that the order entered on the 9th inst., at the instance of Mr. Waldo G. Morse, was entitled in Victor Talking Machine



Co. vs. American Graphophone Co., which was the case your Honor heard on final hearing. It would, therefore appear to be improper to enter this proposed order in these cases against Leeds & Catlin Co., and against the Talk-O-Phone Co., which your Honor has not had before you.

Regretting to annoy you again in this matter, I remain,

Yours very truly,

Horace Pettit.

June 12, 1905.

Hon. John R. Hazel, U. S. Judge,

Dear Sir:

My motion for leave to address the Court or to submit a memorandum with reference to the contract of December 8, 1903, appearing in the suit between the Victor Talking Machine Company and the American Graphophone Company upon Berliner patent No. 534,543, having been denied, I respectfully submit for signature and filing an order to that effect, to the end that the record of the motion may be preserved.

Very truly yours,

Louis Hicks,

Counsel for Leeds & Catlin Company,  
and the Talk-o-Phone Company.

P. S.—Mr. Pettit suggests that the order should be entitled in the suit of Victor Talking Machine Company vs. American Graphophone Company. Judge Platt, however, in putting the suit of American Graphophone Company vs. Universal Talking Machine Company on the Jones patent over, signed an order in American Graphophone Company vs. American Record Company (Law Journal, May 24, 1905), Mr. Edmonds, who made the motion, being solicitor for American Record Company. The



four suits of the Victor Company against the Talk-o-Phone Company and Leeds & Catlin Company were on the calendar ready for hearing before your Honor, and the order presented should properly be made in these suits. It is immaterial in which suit the order is entered; hence, if your Honor should be of opinion that it should be made in Victor Talking Machine Company vs. American Graphophone Company, I have no objection and present the same order entitled in that suit.

#### AGREEMENT.

This agreement made this Eighth day of December, 1903, between the Victor Talking Machine Company, a corporation organized and existing under the Laws of the State of New Jersey (hereinafter called the "Victor Company") and the American Graphophone Company, a corporation organized and existing under the Laws of the State of West Virginia (hereinafter called the "Graphophone Company").

#### WITNESSETH:—

Whereas the Victor Company has received a license from the Berliner Gramophone Company, a corporation organized and existing under the Laws of the State of Virginia, to manufacture, sell and deal in gramophones and gramophone goods, the subject matter of certain United States Patents issued to Emile Berliner, which said patents have never been adjudicated, so that their scope and validity are not ascertained, to wit:—

No. 372,786, issued November 8, 1887;

No. 382,790, issued May 15, 1888;

No. 534,543, issued February 19, 1895;

No. 548,623, issued October 29, 1895;

No. 564,586, issued July 28, 1896;



Whereas, the Graphophone Company is desirous of operating under said patents, provided any claim thereof be sustained so as to control either the zig-zag sound-records, or the process of apparatus for making the same, or the machine for reproducing therefrom, and is desirous of co-operating with said Victor Company in every lawful way to procure as speedily as possible a judicial construction of said patents, or some of them, and

Whereas, the Graphophone Company is the owner of the Patent No. 688,739, granted December 10, 1901, to one Joseph W. Jones, for a method of making Zig-Zag Sound Records, and of the patent No. 714,651, granted November 25, 1902, to Thomas H. Macdonald for Improvement in Recording and Reproducing Sounds, which patents have not been adjudicated, so that their scope and validity have not yet been ascertained, and

Whereas, said Victor Company is desirous of securing a license for making zig-zag records under said patents respectively, provided any claim thereof be sustained broadly, so as to control the said method of making zig-zag sound records; and sound records;

NOW, THEREFORE, in consideration of One dollar in hand paid by each party to the other, and of other valuable and sufficient considerations, receipt whereof is hereby acknowledged, the parties have hereby covenanted and agreed as follows:

1. The said Graphophone Company shall not delay any of the infringement suits now pending or hereafter to be brought against it, by those who own and control the said Berliner patents, but shall do all in its power to speed the said suits to final hearing and final adjudication, using all lawful means to defend the said suits, the object of this portion of the agreement being that the question of the validity of the said Berliner patents, shall be



fully tried as speedily as possible, so that their value may be known and determined at an early date.

2. In case, at final hearing, one or more of said patents as to any broad claim or claims thereof, be sustained by the Court, past royalties and damages shall be waived and the Graphophone Company shall thereafter during the lifetime of said patent or patents, and so long as it uses the subject matter of such sustained claim or claims thereof (unless and until such decision be reversed) pay to the Victor Company by monthly payments, royalties at the following rates. If the sustained claim relates to machines, the royalty shall be

; if the sustained claim relates to sound-records, the royalty shall be                      the basis under which this royalty shall be estimated to be                      per cent. of the list prices of said machines and records.

3. In case one or more claim or claims of the said patent or patents be sustained as provided in Paragraph 2, the said Graphophone Company shall thereafter, whenever so requested in writing by the Victor Company, assist it in the prosecution of its suits brought and to be brought under the said Berliner Patents against other parties, by furnishing its own counsel at its own expense, Court costs to be divided, each party paying one half, it being understood that the direction and control of said suits shall be entirely in the hands of the Victor Company.

4. The said Victor Company agrees to co-operate with the Graphophone Company in adjudicating said Jones Patent and said Macdonald Patent in the same manner as provided in Paragraphs 1 and 3 hereof, with respect to the said Berliner patents, the direction or control of any suits brought under said Jones Patent and Macdonald patents to be in the hands of said Graphophone Company.



5. In case, at final hearing, said Jones patent No. 688,739, or said Macdonald patent No. 714,651, be sustained as to any broad claim or claims thereof, past royalties and damages shall be waived, and the said Victor Company shall thereafter during the lifetime of the said sustained patent or patents so long as it uses the subject matter of the sustained claim or claims of either or both patents (unless and until such decision be reversed) pay to the Graphophone Company by monthly payments, royalties upon all such sound-records, sold by it, at the rate of \_\_\_\_\_ the basis under which this royalty shall be estimated to be \_\_\_\_\_ per cent. of the list prices of said records.

6. It is understood and agreed that the provision herein contained relative to the payment of royalties by the respective parties, shall become operative upon the decision of any infringement suit upon final hearing based upon any of the patents, as herein provided for, which the parties hereto hereafter agree in writing between themselves shall be considered as a test case whether such case to be agreed upon as a test case shall be between the parties hereto or against other defendants.

7. It is further agreed when any of said patent or patents shall be so adjudicated as valid, that the party owning or controlling such patent or patents, will, with due diligence actively proceed against all infringers of its said patent or patents to enjoin such infringing parties from said infringements, and for an accounting when requested, in writing to proceed against any such alleged infringers by the other party hereto.

8. It is further agreed that neither party to this contract shall copy, or reproduce in any manner, any records owned or controlled, or first produced, by the other party, nor will they deal in or handle



in any manner whatsoever, such copies if made by others and that they will co-operate to secure a discontinuance of such acts on the part of others, and to secure legislation making it illegal to copy or counterfeit records, if it shall be found that the present laws do not cover the case.

9. In case any claim or claims, of any of the Victor Company's Patents will be sustained, as provided in Paragraph 2 of this agreement, the Graphophone Company shall thereafter furnish unto the Victor Company, monthly, on the first day of each month, during the existence of this agreement, a correct sworn statement of all said patented machines and records sold by it during the preceding month, and the Victor Company, in case any claims of the said patents of the Graphophone Company shall be sustained as provided in said Paragraph 2, shall thereafter furnish unto the Graphophone Company monthly during the existence of this agreement, a correct sworn statement of all such patented records sold by it during the previous month. Each party shall keep books of account of all such patented goods sold by them respectively. In the event of any disagreement between the parties as to any statement to be furnished, the matter shall be referred for settlement to a firm of disinterested public auditors to be agreed upon by both parties, which firm of auditors shall be privileged to examine the books of either, or both, parties and the report of said auditors shall be final.

10. It is covenanted and agreed by and between the parties hereto that no right is hereby granted or conferred, directly or indirectly, to the Graphophone Company to use the name, or word, "Gramophone" in connection with talking machines, records or accessories, or in any



way whatsoever, and that no right is hereby granted or conferred to the Victor Company to use the name, or word, "Graphophone" relative to talking machines, records or accessories, or in any way whatsoever; the right to the use of the said respective words belonging to the said respective parties being expressly reserved in the respective parties, and each of the parties hereto covenant and agree that it will not use the said name, or word, belonging to the other party.

11. The rights herein provided for shall be personal to the parties to whom the same may be granted, and not assignable or any rights herein whatsoever, without the special consent in writing of the grantor.

IN TESTIMONY WHEREOF, the parties have executed this agreement the day and year first above written.

VICTOR TALKING MACHINE CO.,  
Eldridge R. Johnson, Pres.

Attest:

Albert C. Middleton, Sec'y.  
AMERICAN GRAPHOPHONE CO.,  
By E. D. Easton, Pres.

Attest:

E. C. V. Rockwood.

Witnesses:

Charles K. Haddon,  
A. C. Bowman.  
Philip Mauro.  
Horace Pettit.



**Testimony of Emile Berliner in Suit  
of Victor Talking Machine Co. et  
al. vs. American Graphophone Co.  
on Patent No. 534,543, being Suit  
No. 8627 in U. S. Circuit Court,  
Southern District of New York.**

Washington, D. C.

Mar. 20, 1905; 10 A. M.

And thereupon Emile Berliner, a witness produced on behalf of defendant, being duly sworn, deposes and says, in answer to questions by Mr. Mauro, as follows:—

Q 1. Please state your name, residence and occupation? A. Emile Berliner, Washington, D. C., inventor.

Q 2. Are you the same Emile Berliner upon whose application the patent in suit No. 534,543 was granted to the United States Gramophone Company as assignee? A. I am.

Q 3. In the prosecution of the application for that patent, you filed an affidavit, verified April 23, 1904, in which reference was made to an article entitled "Berliner's Gramophone" published in the "Electrical World" for Nov. 12, 1887. That article, I understand, was prepared by yourself; is that correct? A. I prepared the article, and sent it to the "Electrical World" with the suggestion of publishing the subject matter thereof, and it probably followed the verbatim description of my invention, adding only so much as to show that the ideas published were my own.

Q 4. Have you a copy of that publication? A. I have here a copy of the issue of the Electrical World of Nov. 12, 1887, containing the article.



Q. 5. Will you be kind enough to compare with the published article the extract therefrom included in your said affidavit, which appears in Defendant's Exhibit, file and contents of patent in suit, and which extract I will now read to you? Having made that comparison, will you please state whether the passage is correctly quoted in your said affidavit? A. I have compared your reading of the passage with the original publication and find it correct.

Q. 6. Did you, on or about May 16, 1888, read at a stated meeting of the Franklin Institute in Philadelphia, a paper on the subject of "The Gramophone; Etching the Human Voice?" A. I did.

Q. 7. In what hall or building was that meeting held? A. In the regular lecture hall of the Franklin Institute in Philadelphia.

Q. 8. About how many people were in the audience? A. I should say about 200.

Q. 9. Was that paper published in the proceedings of the Franklin Institute for the month of June, 1888? A. It was.

Q. 10. And have you with you a copy of that publication? A. I have a copy of a reprint from the original publication.

Q. 11. Will you please look at Defendant's Exhibit, Berliner Franklin Institute Paper, the same being a pamphlet stating on title page that it is published by the U. S. Gramophone Co. of Washington, D. C., and state that if that is one of the reprints of that paper? A. The copy presented to me is a reprint of that same publication.

Q. 12. Did you at that meeting etch one or more sound-records by means of the recording apparatus, such as illustrated on page 15 of that reprint,



as indicated under the heading "Demonstrations" on page 16 of that paper? A. I etched one record, traced by means of the recording apparatus, illustrated on page 15.

Q. 13. Did you at that meeting use in reproducing one or more phonautograms, which you had prepared previously to the meeting, the reproducing apparatus illustrated in the second cut on page 17 of said paper, and there marked "Reproducing apparatus, May, 1888?" A. I had with me at that lecture a number of records previously etched in Washington and I reproduced them with such reproducing apparatus as is illustrated on page 17 of the pamphlet.

Q. 14. Will you please describe briefly the construction and operation of the mounting of that reproducing apparatus, with reference to the movement of the same across the tablet? A. The reproducing diaphragm sound-box was mounted at the end of a pivoted lever, to it attached was a rubber tube which led to a horn mounted on the violin music stand. The stylus of the reproducing sound-box was placed into the outer circle of the spiral of the record, and upon turning the table, upon which the record was mounted, the sound-box was propelled freely across the record-disc by and along the volute of the record.

Q. 15. On page 18 of that publication, reference is made to Werner Suess. Is he the same Werner Suess on whose application, letters-patent No. 427,279 (Defendant's Exhibit, Suess Patent) was granted to you as assignee?

Counsel for complainants objects to the question as incompetent, irrelevant and immaterial; also to this line of examination of the witness in the foregoing questions, relative to the said Franklin Institute lecture



and publication as incompetent, irrelevant and immaterial, and notice is hereby given that motion will be made at the hearing to strike the same from the record, this objection being also noted to questions relative to the same line of examination hereafter to be asked the witness without a repetition of the objection being noted.

A. He is the same Werner Suess.

Q. 16. Was Mr. Suess' invention, set forth in that patent, assigned to you for foreign countries as well as for the United States, and did you procure patents therefor in certain foreign countries? A. At the time that the American patent was assigned to me, there was no agreement between Mr. Suess and myself with regard to foreign patents.

Q. 17. I call your attention to Defendant's Exhibit, Suess French Patent, which is dated May 6, 1890, the same date as the U. S. Patent No. 427,279, and ask you whether or not that French patent was taken out by you or for you?

Question objected to as incompetent, irrelevant and immaterial.

A. I had nothing to do directly with the taking out of either the American or this French patent. I was in Europe at the time they were applied for. Of course, I understood that Mr. Suess was to apply for an American patent, but with regard to the French patent, I have no recollection whatsoever of having suggested it to Mr. Suess; in fact I am quite sure that I did not do so.

Q. 18. Did you have any interest in this French patent?

Same objection.

A. Not at the time when it was taken out, although some years afterwards I believe it was



merged into the European interests with which I was connected.

Q. 19. Was this patent taken out with your knowledge and consent; the French patent, I mean?

Same objection.

A. As before stated, I knew nothing about it at the time it was taken out.

Q. 20. Did you pay any part of the costs of proceeding that French patent?

Same objection.

A. No.

Q. 21. Are you financially interested in the complainant companies, the Victor Talking Machine Co. and the U. S. Gramophone Co.? A. I am.

Q. 22. Did you instruct or advise Mr. Suess to make his application for patent through Mr. Joseph Lyons?

Same objection.

A. Mr. Suess knew that all my patents were prosecuted by Mr. Joseph Lyons, and he probably surmised that it would be my desire that his American patent be prosecuted also by Mr. Lyons.

Q. 23. At the time Mr. Suess' patent was applied for, he was an employee of yours, was he not? A. He was.

Q. 24. Did your contract of employment with him provide or contemplate that talking-machine inventions which he might make while in your employ should be assigned to you? A. I do not recollect that we had any written agreement with regard to Mr. Suess' services, except that he was paid a certain salary by the week or by the month.

Q. 25. What I wanted to get at was, whether the invention described in Suess' Patent No. 427,279 became your property in consequence of his rela-



tion with you as employee, or in consequence of a special arrangement? A. There was no special arrangement, but when he suggested the movable arm, I at once told him that I, of course, desired to be the assignee of the patent. I had in my mind at all times that my employees who worked under my direction in my laboratory were under certain obligations by law to turn over to me any invention which they would make in the course of their work for me and under my directions. I generally made it a rule to give them a special compensation as an encouragement for the special interest taken by them in my work, and it was under this condition of mind that I asked Mr. Suess to take out an American patent and assign the same to me.

Q. 26. Did Mr. Suess accept this view of the obligations of his employment.

Objected to as clearly incompetent; further as irrelevant and immaterial.

A. He evidently did, as he made no objection to turning over the patent to me.

Q. 27. Mr. Suess is no longer living, is he? A. He died several years ago.

Cross-examination by Mr. Pettit:

XQ. 28. In the publication of the "Electrical World" of Nov. 12, 1887, offered in evidence by the defendant, and to which you have referred in your direct-examination, the following is stated, among other things, in describing the invention:—

"Another way is to mount the phonoautogram on a circular, wooden resonant box, which simply rotates without progressive motion, and to press an ivory point into the groove.

In this case the hand which holds the ivory easily follows the groove, and the point is



led along the volute of the record, and vibrates the sound box by undulatory shocks."

You may state whose invention this arrangement of apparatus and method was, as described by you in the part just quoted? A. It was my own invention.

XQ. 29. You may state whether Mr. Suess had anything to do with inventing this construction of apparatus and method just quoted? A. Mr. Suess was not then in my employ, and he had nothing to do with this idea.

XQ. 30. When you stated in this description, just quoted "and the point is led along the volute of the record," what did you mean by the word "led?" A. I meant by the word "led" the engaging, taking hold of and propelling of the stylus by the record-groove, at the same time that it is vibrated.

XQ. 31. What function did the hand perform which held the ivory stylus, as described? A. The hand was the stylus-holder merely.

XQ. 32. What do you mean by that? A. I mean that the hand holding and lightly pressing the stylus into the record-groove, was forced to follow the latter from the periphery to center of the record.

XQ. 33. You then suggested in this article, and described one of the mechanical devices for mounting a reproducing diaphragm and stylus, so as to permit the stylus not only to vibrate but at the same time to carry it across the revolving disc. The statement referred to immediately following the last statement quoted, reads as follows:—

"This suggests the plan of mounting a reproducing diaphragm and stylus on a carriage moving on rails, and permitting the pointed stylus not only to vibrate but also to push the carriage across the revolving disc,



and thereby follow the voice of the sound record."

I ask you to look at U. S. patent No. 564,586, issued to you July 25, 1896, for Gramophones, marked Defendant's Exhibit, Berliner Patent No. 564,586, and state whether the construction of apparatus specified in the portion just quoted from the "Electrical World" is illustrated in Fig. 10 of the drawings of this patent? A. The patent quoted was applied for a few days before the publication of the quoted article in the "Electrical World," and the illustration of Fig. 10 in said patent is the same construction I had in mind when I prepared the article of the "Electrical World."

Q. I quote now from the specification of the Berliner patent No. 564,586, page 4, lines 110-123, and ask you whether this is a correct description of the apparatus and method illustrated in Fig. 10 of said patent:

"The diaphragm-casing 31 is secured to a small truck 55 upon rails 56 arranged vertically above and parallel with a diameter of the reproducing-disc, and at such height above the same that the stylus 29 will be in engagement with the undulatory grooves of even depth which represent the record of sounds.

The listener applies his ear to the ear-piece, and when the shaft 6' is rotated the stylus and diaphragm will be forced to vibrate, as in the apparatus shown in Fig. 1, but will at the same time move with the truck 55 across the face of the disc 54."

Objected to as incompetent and clearly not germane to the direct-examination. If complainant desires to have Mr. Berliner's testimony with reference to his patent No.



564,586 it should be taken as part of complainant's case.

A. The description quoted correctly describes the function of the apparatus described in Fig. 10.

XQ. 35. Does it also clearly describe the apparatus there illustrated? A. Yes.

XQ. 36. What moves the truck in the construction of this same Fig. 10, across the track?

Same objection.

A. The record groove, being in hard resisting material, presses against the stylus 29 which is firmly attached to the diaphragm-box 31 which again is connected to truck 55, and as the record-groove is a spiral, in rotating the same the truck 55, is moved across the record disc. This is facilitated by the two wheels of the truck, which enable the latter to freely roll on the wire 56 when pressed by the record-groove acting against the point of the stylus.

It is hereby stipulated and agreed by counsel for complainant that Sness' French patent No. 205,491 appears to be the same as U. S. patent No. 534,543 and may be treated as such subject to correction.

Cross-examination closed.

Certificate and signature waived.

Defendant rests.



**Testimony of Emile Berliner in Rebuttal in Same Suit.**

Philadelphia, April 14, 1905.

By Mr. Pettit:

Q1. You are the Emile Berliner, who has testified in this case before, having been called as a witness by the defendant, are you not? A. I am.

Q2. You may state whether you are the inventor and patentee of the invention claimed in the patent in suit, No. 534543? A. I am.

Q3. In your deposition of March 20, 1905, in this suit, you testified, among other things, to the construction of apparatus shown in Fig. 10 of Berliner patent No. 564586 issued to you July 28, 1896, and filed November 7, 1887, which is illustrated and described in this patent. Will you kindly produce, if you can, a model embodying the construction illustrated and described in Fig. 10, of the said Patent No. 564586? A. I hereby produce a model which is practically a copy of a device used by me in 1887 about the time that the patent in question was filed. We did not then have a box motor machine, and the records were larger, and the mounting of the rail on which the carriage moved was on separate posts, but otherwise this is such a construction as I then made and successfully operated.

The witness, in answering the above question, has produced the model referred to, which is offered in evidence and marked "Complainants' Exhibit, Berliner Model."

Q4. Do you know what became of the original apparatus similar to this model which you just produced? A. I do not.

Q5. Have you made any search for it? A. I made a search for it in the last few days, but did not



find any part of it. I might state that I have in my possession what I believe is part of the turntable used at that time, but I have nothing of the mechanism, the rail and carriage then used.

Q6. You may state when the device, such as claimed in claim 35 of the patent in suit, embodying the process or method claimed in claim 5, was first sold and put in public use by you, or any one, to your knowledge, in this country? A. In 1894, the United States Gramophone Company being the assignee of my gramophone patents, began the manufacturing and the sale of gramophones embodying the invention claimed in claims 5 and 35 of the patent in suit, and a large number of such machines were sold in the Autumn of 1894. This was the first time that talking machines were sold, in which a feed screw for the purpose of propelling the reproducing sound box across the record was dispensed with.

Q7. Had this construction of apparatus and method of using the same been in public use in this country prior to the date just mentioned by you, to your knowledge? A. No, it had not.

Q8. You may state briefly what you know about the commercial use of this invention embodied in claims 5 and 35, from the time that it was first placed upon the market by you, or by the United States Gramophone Company, in 1894? A. In 1895 the United States Gramophone Company gave a sole license under the patents owned by it, to the Berliner Gramophone Company, of Philadelphia, and thereupon this latter company continued the manufacture and sale in large quantities of apparatus, such as described in the two claims mentioned, and from that time the business of selling these machines grew to large proportions, until to-day on every portion of the globe machines of this type can be found.



Q9. You may state whether, prior to the time that your invention involved in this suit, was placed upon the market, as stated by you, there was any other company or party manufacturing or selling, without your license or permission, a machine involving the apparatus and method of your invention? A. No, I have not parted with my rights for making and selling this invention to any other party, except to the United States Gramophone Company, who was the successor of the American Gramophone Company.

Q10. And you may state whether your invention embodied in the claims in controversy in this suit, had been in public use in this or any country for more than two years prior to your application for this patent in suit, No. 534543? A. No, it had not.

Cross-examination by Mr. Mauro:

XQ11. In answering Q7, did you assume that "public use" is synonymous with "commercial use"? A. By "public use" I mean any other use but of my own and my assistants of the laboratory.

XQ12. According to your understanding, a use in public is not a public use if by yourself or one of your assistants. Is that your understanding? A. By public use I understand the use in public of an invention for profit.

XQ13. You say that the first sale of machines in which a feed screw for the purpose of propelling the reproducing sound box across the record was dispensed with, occurred in 1894. Is it your understanding that the invention of the claims involved in this suit is for an apparatus or method for propelling a reproducing sound box across the record without a feed screw? A. The two claims, 25 and 35, refer to any apparatus in which the record groove both propels and vibrates the reproducing stylus or sound box, and it practically means to the exclusion of a feed screw for that purpose, or



242 — Testimony of Emile Berliner.

of any other device outside of the record groove itself, by which the sound box or the reproducing stylus may be propelled across the record surface.

Redirect-examination by Mr. Pettit:

RDQ14. Were any of the machines claimed in claim 35 or apparatus embodying claim 5, in public use, in any sense, to your knowledge for more than two years prior to the date of your application for your patent in suit?

Objected to as incompetent.

A. No, they were not.

EMILE BERLINER.

Deposition of the witness concluded.



horizontal lines drawn from the gauge numbers, give the exact sizes of the gauge numbers to the thousandth of an inch. By estimating the position of a gauge line between the vertical thousandth of an inch lines the readings may be made to the ten thousandth. The readings may also be made in millimeters or common fractions of an inch by following the vertical lines to the top and reading directly from the desired scale.

From the construction of the chart it follows that the inclinations at which the various gauge lines stand represent the rates of increase between consecutive gauge sizes. Thus a gauge whose line is straight has differences of the same portion of an inch between its No. 1 and No. 2, as between its Nos. 31 and 32, while in the gauges whose lines are curves the amounts of difference are constantly increasing and are all nearly a constant per cent. of their adjacent gauge sizes. In Latimer Clark's, for example, each size has 25 per cent. more area of cross section or weight per foot than the following size. It will be readily understood that the gauges whose general direction of slope on the chart is from the lower left to the upper right hand corner increase in the same order as the digits composing the gauge number. For example, the screw gauges, in which No. 12 is a larger size than No. 8. On the other hand, while those slanting the opposite way, namely, from the lower right hand to the upper left, increase inversely with the gauge digits. For example, the Brown & Sharpe in which No. 6 is larger than No. 12. We will call the former *progressive* and the latter *retrogressive*.

The usual excuse for the launching of a new gauge upon the bewildered public is that there is no perfect or scientific gauge. But we find upon the chart four straight lines indicating four gauges (all progressive) whose rates of increase between notches are regular or uniform, giving respectively four different rates of increase. There are three which form perfect geometrical curves and there are others which form irregular curves, and irregular straight lines, both of the latter classes growing up from early use, while the regular or perfect ones are of mathematical design and recent origin.

We see not only that there is no lack of variety from which to select the best, but also, that the possibilities of gauges are so well covered that it is difficult to get up a new gauge without duplicating some existing one; for instance, the Proposed National Electric Light Association gauge proves to be the same as the German millimeter gauge.

Herewith is a list of all the gauges grouped according to their characters; and following that are a few other proposed gauges, which are not entered on the chart for lack of room and because they have not come into use. They are given chiefly to make the list complete, and to show how much ingenuity and foolishness has been bestowed upon the subject.

Each authority in the list has been verified by several others. The most familiar is the one given. Apparently every source of information has been exhausted. If any further information can be had or an error is detected a communication will be deemed a favor.

The writer desires to acknowledge the assistance of Messrs. Darling, Brown & Sharpe, Pratt & Whitney, Queen & Co., Woodhouse & Rawson, The Silvertown Company, The Electrical Supply Company, The William Lang Company, THE ELECTRICAL WORLD, the Iron Age, the Edison Company, the Morse Twist Drill Company, the American Screw Company, Messrs. Fredk. Brooks, Messrs. Curtis & Crocker, Professor Egleston, Dr. Wahl, Dr. Raymond and others.

#### Berliner's Gramophone.

For some years past, Mr. Emil Berliner, of Washington, has had his thoughts fixed on the reproduction of speech. It was not until recently, however, that he gave time to systematic work in the solution of the problems involved, and the result of his endeavors is the invention of a sound reproducing instrument which he calls the "Gramophone."

Before entering into a description of Mr. Berliner's method, it may not be uninteresting to pass in review the various considerations which led Mr. Berliner to adopt the plan he finally arrived at.

By the ordinary method of recording speech or other sounds for reproduction, a stylus attached to a vibratory diaphragm indents a traveling sheet of tin-foil-like substance to a depth varying in accordance with the amplitudes of the sound waves to be recorded. According to Mr. Berliner this attempt is necessarily more or less ineffective for the reason that the force of a diaphragm vibrating under the impact of sound waves is very weak, and that in the act of overcoming the resistance of the tin-foil or other material, the vibrations of the diaphragm

are not only weakened, but are also modified. Thus, while the record contains as many undulations as the sounds which produced it, and in the same order of succession, the character of the recorded undulations is more or less different from those of the sounds uttered against the diaphragm. There is then a true record of the

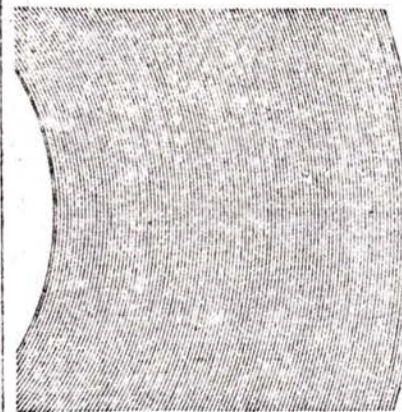


FIG. 2.—SECTION OF GRAMOPHONE RECORD.

pitch, but a distorted record of the quality of the sounds obtained.

The simple statement that the material upon which the record is made resists the movement of the diaphragm is not sufficient to explain the distortion of the character of the undulations; for, if, as Mr. Berliner holds, the resist-



FIG. 1.—THE BERLINER GRAMOPHONE.

ance were uniform with, or even proportional to, the displacement of the stylus, the record would be simply weakened, but not distorted.

But as the resistance of any material to indentation increases faster than the depth of indentation, it follows that a vibration of greater amplitude of the stylus meets with a disproportionately greater resistance than a vibration of smaller amplitude. For this reason Mr. Berliner claims that loud sounds are even less accurately recorded than faint sounds, and the individual voice of a loud speaker recorded and then reproduced by the phonograph cannot be recognized.

With a view of overcoming this defect, attempts have been made to engrave, instead of indent, a record of the vibrations of the diaphragm by employing a stylus, shaped and operated like a chisel, upon a suitably prepared surface; but even in this case the disturbing causes above referred to are still present. In addition to this, if in the apparatus of the phonograph or graphophone type, it is attempted to avoid as much as possible the disturbing influence of the increase of resistance of the record surface with the depth of indentation or cut, by primarily adjusting the stylus so as to touch the record surface only lightly, then another disturbing influence is brought into existence by the fact that with such adjustment, when the diaphragm moves outwardly, the stylus is apt to leave the record sur-

face entirely, so that part of each vibration will not be recorded at all. This, says Mr. Berliner, is more particularly the case when loud sounds are recorded, and it manifests itself in the reproduction, which then yields quite unintelligible results.

In order to overcome these difficulties, Mr. Berliner records speech and other sounds without perceptible friction between the recording surface and the recording stylus, and by maintaining the unavoidable friction uniform for all vibrations of the diaphragm. The record, thus obtained almost frictionless, is then copied in a solid resisting material, and this copy of the original record is used for the reproduction of the recorded sounds.

Instead of removing the recording stylus at right angles to and against the record surface, Mr. Berliner causes the same to move under the influence of sound waves parallel with and barely in contact with the surface, which is covered with a layer of a material, such as lamp-black, that offers a minimum resistance to the action of a stylus operating to displace the same. All this is substantially the same as the method employed in the well-known phonograph of Leon Scott, invented over 30 years ago.

Since in this operation the stylus only penetrates the uniform layer of loosely heaped carbon spicules, and barely touches the record system, it is clear that the slight friction at the free end of the stylus will be uniform, whatever may be the amplitude of vibration. Consequently, the vibrations of the diaphragm will not be modified or changed by the reaction upon the same of a sensible and varying resistance.

Having thus obtained an accurate phonographic record, the same may be fixed by applying a thin solution of varnish of any kind, which dries very rapidly, and which does not obliterate or change the record.

If, in this process, the deposit of lamp-black be made heavy enough, the line drawn by the stylus would represent a groove of even depth, preserving all the characteristics of the sounds which produced it, and which may be handled and touched with impunity. This record is then copied in a solid resisting material, such as metal, either by the purely mechanical process of engraving, or by chemical deposition, or by photo-engraving. Mr. Berliner prefers the last-named process, as it enables him to produce the most accurate copy of the original record in copper, nickel or any other metal, and from this in any plastic material, without in any way affecting the original record.

The copy thus obtained, which may be multiplied to any desired extent, is a grooved wave line upon a strip or sheet of copper or other metal, and for the reproduction of the recorded sounds Mr. Berliner claims that it has the advantage over the ordinary records in tin-foil, wax, etc., that it is not sensibly attacked by the reproducing stylus, and will stand an indefinite number of reproductions without the slightest variations in the accuracy and loudness of the reproduced sounds.

If now the engraved record is rotated with uniform speed, and a stylus be held in the groove, the end of the stylus will be forced to follow the undulations of the groove, and any vibratory surface attached to the stylus will be vibrated positively in both directions, in strict accordance therewith; and will, therefore, reproduce the exact sounds which originally produced the record. This peculiarity of positive vibratory movement in both directions of the diaphragm is a distinguishing feature of Mr. Berliner's method and apparatus, and in which it differs from others heretofore used. In the phonograph and graphophone the end of the reproducing stylus which bears upon the indented or engraved record has a vertical upward and downward movement. It is forced upwardly in a positive manner by riding over the elevated portion of the record; but its downward movement is effected solely by the elastic force of the diaphragm, which latter is always under tension. In Mr. Berliner's apparatus the stylus travels in a groove of even depth, and is moved positively in both directions sidewise; it does not depend upon the elasticity of the diaphragm for its movement in one direction.

This Mr. Berliner considers to be an advantage, since by this method the whole movement of the diaphragm is positively controlled by the record, and is not affected or modified by the physical conditions of the diaphragm, which conditions necessarily vary from time to time, and constitute some of the causes of imperfect reproduction of recorded sounds.

As at present constructed, Mr. Berliner's gramophone, illustrated in the engraving, Fig. 1, is essentially a mechanism capable of rotating a circular disc of plate glass about  $\frac{1}{8}$  inch thick and 11 inches in diameter, and at the same time arranged to give the disc a progressive movement in accordance with a screw passing through the standard supporting the disc.

In the reproduction of sound, the glass disc is sup-



planted by one of metal, sealing wax, rubber or other suitable material, in which the sound record appears as a groove of even depth but varying direction.

To trace a phonautogram negative, the glass disc is laid on a level block and printer's ink of a suitable consistency is applied in an even layer by a common printer's roller. The disc is then placed face down on a revolving table which supports the centre portion of the disc, and with which it is slowly revolved by hand, a smoky coal oil flame is held underneath, which deposits lamp-black upon the printer's ink, consolidates with the same and they together form an even layer of an amorphous semi-fluid mass, nearly opaque to light and easily displaced by a stylus. Thus prepared the disc is placed and screwed face down upon the gramophone.

Under it and fixed on an adjustable support is a mounted diaphragm bearing upon its centre a standard, to which is attached a stylus in the form of a flat spring of phosphor bronze or brass, which is so pivoted that it will follow the movements of the diaphragm accurately.

The point of this stylus is bent upward and presses lightly against the smoked surface of the glass disc on a line parallel with it and perpendicular to the screw shaft which moves the disc. To the diaphragm box is attached a rubber tube, into the free end of which is fitted a pear-shaped mouthpiece of hard rubber, so constructed that the nose of the speaker, as well as the mouth, can freely enter it and thus enable him to transmit to the diaphragm the full acoustic value of each vibration.

The motive power of the apparatus is a weight consisting of a square tin box filled with pieces of lead and buckshot and hung on a main shaft by two wire cords directly under the table. By suitable gearing the adjustment is such that the weight will have descended to the floor at the same time that the stylus will have traced the end of the intended volute of the sound waves. A fan regulator checks the too rapid descent of the weight, and by taking out or adding buckshot the velocity is regulated to a nicety.

The weight having been wound up by a crank, and the fan regulator switched in, the tin box is permitted to descend, the glass disc is rotated and progresses sidewise, and the stylus traces a plain volute or spiral on the lamp-black surface. The material which the stylus scrapes off falls down and, therefore, cannot interfere with the clearness of the lines, and this is the reason why the tracing is done from below.

Now, when a person speaks or sings into the mouthpiece, the stylus will vibrate in accordance with the sound waves, exactly as in the Scott phonautograph, and the volute will assume an irregular wave line corresponding in form and numbers to the sound transmitted.

When arrived at the terminal point, the gearing is disengaged, the disc is still further advanced sidewise, and is then given a single revolution by hand, which causes the stylus to trace a true circle, called the "centring circle," and which enables the operator to find the original centre again by well-known simple geometrical construction.

The disc is then taken from the apparatus, and with an ordinary pen the name of the speaker and date of record is traced in the middle and unused portion of the disc, together with such other remarks as occasion requires. The record is then fixed by pouring quickly-drying photographer's varnish over it. The disc, then, when held up against the light, looks like a photographic negative, exhibiting a transparent sound record on a black ground. From this a photo-engraving is produced by laying the varnished face on a sensitized chrome-gelatin surface, exposing this to actinic light, then swelling in water and casting in plaster, wax, etc., according to the various methods known in the art of photo-engraving. Our illustration, Fig. 2, is printed from a photo-engraving prepared in this manner, and shows a section of the record produced.

As a result there is obtained an exact copy of the record as a groove of even depth and varying direction in a hard resisting material. This phonautogram is then centred from its centring circle, and placed upon the revolving table of the gramophone in lieu of the glass disc, but face upward. A more or less fixed stylus is then permitted to be guided by the groove, when this stylus will assume exactly the same motions which the tracing stylus had previously made.

There are various means for making audible and enlarging the vibrations of the reproducing stylus. A simple plan is to hold a sharply-pointed bamboo stick, or even a toothpick, between the teeth, close both ears with small pieces of chamois leather or wadding, and press the point lightly into the rotating groove. Or a mounted diaphragm having connected to its centre a flat stylus similar in form to the recording one, but of shorter leverage—as shown lying on the table in the engraving—is so placed above the groove that the bent point of the flat spring also presses lightly into the groove. Or a large wooden resonant box is connected to the groove by a stick having an ivory or boxwood point.

Another way is to mount the phonautogram on a circular, wooden, resonant box, which simply rotates without progressive motion, and to press an ivory point into the groove. In this case the hand which holds the ivory easily follows the groove, and the point is led along the volute of

the record, and vibrates the sound-box by undulatory shocks.

This suggests the plan of mounting a reproducing diaphragm and stylus on a carriage moving on rails, and permitting the point of the stylus not only to vibrate, but also to push the carriage across the revolving disc, and thereby follow the volute of the sound record.

Mr. Berliner believes that it is more than likely that the gramophone is destined to fulfill many of the expectations which were placed ten years ago on the phonograph, and which are partly realized by the graphophone. The principle of either of these two methods, *i. e.*, direct indenting or engraving by the voice, and automatic engraving from a lamp-black phonautogram or voice writing, determines their ultimate respective utilities.

One will find application, he holds, wherever the recognition of the voice is immaterial. In the graphophone the reproduced sound is as loud as that of an ordinary telephone message, but the distortion is sufficient to make it unrecognizable, save to a strained imagination added to a previous knowledge of the author of the sound. But it appears to be the best instrument to take down business letters or dictations of any kind in which the recognition matters little, so long as the words can be made out. Its results are immediate inasmuch as the engraved record can at once be used for the reproduction. Mr. Berliner has ground for believing that ultimately the gramophone may be able to reproduce speech directly from the lamp-black phonautogram. The gramophone will therefore be restricted for the present to the domain of higher art and with that portion of public demands which require a recognition of the voice, its full character and also a certain loudness of reproduction. Moreover the speaking phonautograms are practically indestructible, and Mr. Berliner has used one over a thousand times without altering its character in the least.

The voices of those absent or dead will ultimately be re-

produced with startling accuracy, and the time is coming when everybody will have his voice "taken" as he now has his portrait, and the phonautograms will bear in their centre beside his signature the portrait of the speaker.

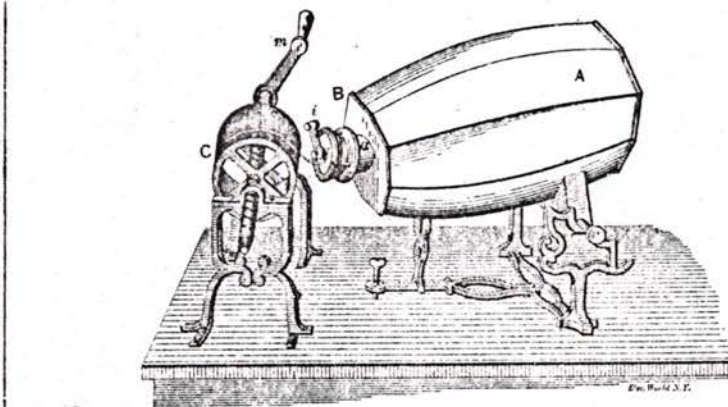
That the production of phonautograms will become an art to be studied is beyond a doubt, and although the process is now comparatively simple, it took Mr. Berliner months of the closest study and continuous observations to eliminate the various defects which had to be overcome in order to arrive at practical results.

Within four hours from the time of tracing the voice in lamp-black an electrolyte phonautogram mounted to be put in motion can easily be produced, and from this one thousands of exact copies can be made. In fusible metal or sealing wax the reproduction can be obtained in two hours.

An 11-inch disc embodies at present a record of four minutes duration, but will soon be extended to six or eight minutes, or to from 1,500 to 2,000 words.

As the art progresses the same will be simplified and become more refined, and within a few years we may have our choice of phonautograms recorded by popular orators, writers, singers, actors, etc.; one will send his "voice" to distant friends, deposit his last will as a phonautogram, and it will be read in court after one's demise and attested to by one's friends as "poor John's voice sure enough," with his signature attached.

For even at this early stage in the art of gramophony a recognition of the voice is unmistakable and the only practical problems now are to produce an even and regular motion and to find the most suitable material in which to mold the reproducing plate. This material should have a minimum friction with the point of the stylus, so as to obviate the noise made by two bodies sliding in contact and past each other.



LEON SCOTT'S PHONAUTOGRAPH OF 1857.

Cross belongs the honor of having first suggested the idea of, and feasible plan for, mechanically reproducing speech once uttered.

For, taking the idea of a phonograph to have occurred to Mr. Edison as early as the latter part of September, 1877, it becomes conclusive that the conception of a gramophone preceded it by at least 5 months.

I have, in making this publication, tried to act with justice towards a possible prior claimant, and that reminds me that I may at this juncture take occasion to remark that I cannot exactly concur with the methods of the prominent inventor—whenever he may be mentioned in an editorial in your issue of Sept. 10, 1887, and who, you allege, is always trying to—as he says—"balk" the inevitable anticipator by quickly rushing into print.

Had that prominent one been the first to construct the dynamo, he would no doubt have quickly come out in an "interview," in order, by ignoring prior work, to "balk" Pacinotti and the illustrious and inevitable Faraday.

Had he been the first to see the planet Neptune, he would, I suppose, have quickly engaged a couple of columns in some prominent daily, and with big headlines, have tried to "balk" the immortal and inevitable Leverrier, who predicted the existence of that planet.

Had he been the first to publicly send messages from a moving railroad train by induction, he would, I am sure, by adroitly managing reporters, have tried to "balk" before the public at large, Mr. W. Wiley Smith.

Such anticipators, and others like Boursouff and Cross, who, not by haphazard discoveries, but by sheer force of logic, have forestalled subsequent achievements, and perhaps were too poor or disinterested, too busy otherwise, or without assistance to quickly come to practical issues, would hardly deserve to be "balked."

I know of several well known electrical inventors who plainly seem to be afraid of this very "balking" process and who made up their minds long ago to keep their new ideas a profound secret until the patent for them had issued.

Mr. Berliner has forwarded us for publication also the following matter in relation to this subject: "I deem it a duty to a co-laborer in science to say that the general idea of photo-engraving a phonautographic record and to use



[Reprinted from the JOURNAL OF THE FRANKLIN INSTITUTE, June, 1888.]

*Mr. Alex. Melville Bell  
with compliments  
of the author.*

THE GRAMOPHONE: ETCHING THE HUMAN VOICE.

BY EMILE BERLINER.

[A paper read at the Stated Meeting of the FRANKLIN INSTITUTE,  
May 16, 1888.]

JOS. M. WILSON, President, in the chair.

THE PRESIDENT introduced Mr. BERLINER, who spoke as follows:

MEMBERS OF THE FRANKLIN INSTITUTE, LADIES AND GENTLEMEN:—The last year in the first century of the history of the United States was a remarkable one in the history of science.

There appeared about that period something in the drift of scientific discussions, which, even to the mind of an observant amateur, foretold the coming of important events.

The dispute of Religion *versus* Science was once more at its height; prominent daily papers commenced to issue weekly discussions on scientific topics; series of scientific books in attractive popular form were eagerly bought by the cultured classes; popular lectures on scientific subjects were sure of commanding

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enthusiastic audiences; the great works on evolution had just commenced to take root outside of the small circle of logical minds from which they had emanated, and which had fostered them. Scientific periodicals were expectantly scanned for new information, and the minds of both professionals and amateurs were on the *qui vive*.

Add to this the general excitement prevailing on account of the forthcoming centennial celebration with its crowning event, so dear to this nation of inventors, the world's exhibition, and even those who did not at the time experience the effects of an atmosphere pregnant with scientific ozone, can, in their minds, conjure up the pulsating, swaying, and turbulent sea of scientific research of that period. Science evidently was in labor.

The year 1876 came, and when the jubilee was at its very height, and when this great City of Philadelphia was one surging mass of patriots filling the air with the sounds of millions of shouts, a still small voice, hardly audible, and coming from a little disk of iron fastened to the centre of a membrane, whispered into the ear of one of the judges at the exhibition, and one of the greatest of living scientists, the tidings that a new revelation had descended upon mankind, and that the winged and fiery messenger of heaven's clouds had been harnessed to that delicate, tremorous, and yet so potent form of energy, called the Human Voice.

The speaking telephone had been born.

The stimulus which this event gave to science can best be measured by the enormous advance made since, especially in that now most prominent branch, electricity, and I will show further on how, immediately following it, our sister republic across the ocean answered the magic touch by the conception of another invention, the scope of which cannot to-day be measured yet, and which only just now is starting on its career of usefulness among the practical arts.

In order to show the influence which these two inventions had upon each other, and how their respective development came about in parallel steps, permit me, before entering upon the new methods which I am to bring before you to-night, to pass in rapid review on the principal events in the history of the



transmission of speech electrically, and of recording and reproducing the same mechanically.

In 1854, Charles Bourseuil, with more than usual boldness, advanced the idea that two diaphragms, one operating an electric contact, and the other under the influence of an electro-magnet, might be employed for transmitting speech over telegraphic distances. "Speak against one diaphragm," he said, "and let each vibration break or make the electric contact, and the electric pulsations thereby produced will set the other diaphragm vibrating, and the latter ought then to reproduce the transmitted sound." Outside of the fallacy which his theory contained in the assumption of breaking the contact, instead of merely modifying the same, Bourseuil's paper, in speaking of the diaphragm, laid stress upon stating that "if one could be invented so movable and flexible as to answer to all the undulations of sound." He evidently desired extreme flexibility, and diaphragms constructed on that principle proved fatal to the efforts of many subsequent experimenters; even at first to Mr. Bell, who, like Bourseuil, borrowed the idea from the flexible *tympanum membrani* of the human ear, and who overlooked the important modifications which the vibrations undergo, before reaching the auditory nerve, by the series of muscular hinges in which the various bony accessories of the ear are mounted, and which act as elastic dampers against the *tympanum membrani*.

Bourseuil's ideas were immediately reprinted from French journals in other countries, and among the first was a prominent German semi-weekly journal, printed in Frankfurt-on-the-Main, *The Didaskalia*, which, on September 28, 1854, under the heading "Electrical Telephony," published a leading article, giving a full account of Bourseuil's ingenious and wonderful conception.

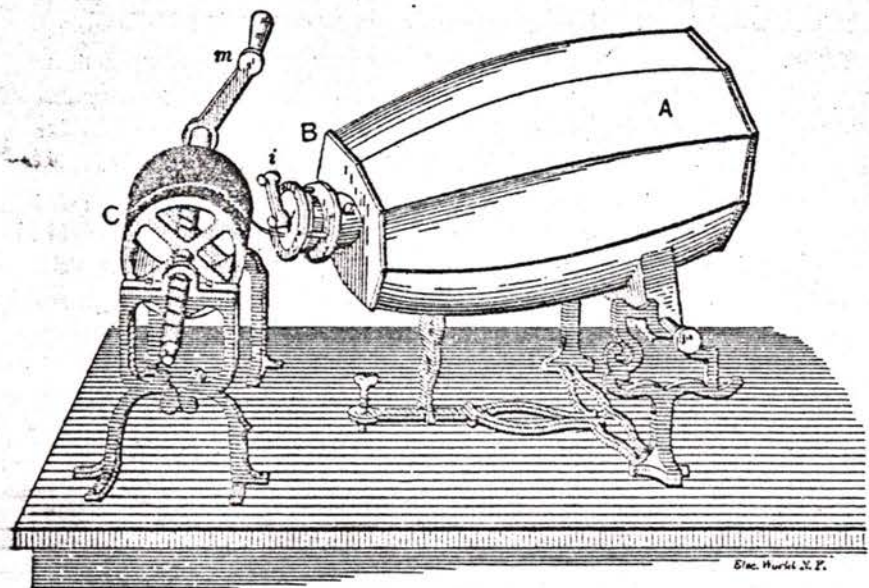
Frankfurt was then a city of about 60,000 inhabitants, and among other institutes of learning, it supported a Physical Society, which counted, at the time of this publication, among its active and most zealous members, an enthusiastic young teacher named Philip Reis, who, five years afterward, actually made an apparatus such as indicated by Bourseuil (who had since died without executing his idea), and which apparatus has since become known as the Reis telephone.

I will not now enter upon any controversy as to the scope of



this invention, regarding the possibility at the present day to transmit speech with the same. It may suffice to state that, when the news of the Bell telephone reached the learned men of Germany, some of the very first scientists in Berlin who knew all about the Reis apparatus, doubted the possibility of the performance as represented by the American press. It is also now a matter of history, that in the late decision in favor of Mr. Bell, the United States Supreme Court was unanimous so far as the Bourseuil-Reis apparatus was concerned.

FIG. 1.



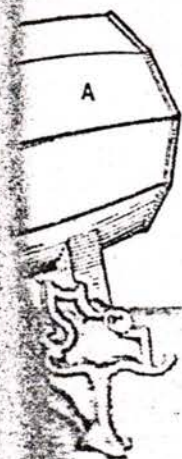
Scott's Phonautograph.

While Bourseuil's conception was being digested by Reis, another invention, having also a membrane diaphragm as its motive principle, was patented in France in 1857. This was the phonautograph, by Léon Scott, which had for its purpose the recording of sound vibrations upon a cylinder rotated by hand and moved forward by a screw (Fig. 1). The cylinder was covered with paper, this was smoked over a flame, and a stylus attached to the centre of a diaphragm under the influence of words spoken into a large barrel-like mouthpiece, would trace sound vibrations



the present day to state that, when learned men of Ger-  
 Berlin who knew all  
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It is also now a  
 in favor of Mr. Bell,  
 mous so far as the



upon the smoky surface. Scott also employed an animal mem-  
 brane for his diaphragm, and took pains, by means of an attach-  
 ment called a sub-divider, to make the vibrations appear as large  
 as possible. This sub-divider, however, became the prototype of  
 the dampers in subsequent apparatus, like the Blake transmitter  
 and the Edison phonograph.

The next important event in electro-phonic and acoustic sci-  
 ence was the publication by Helmholtz of his investigations in  
 sound, and of König in the same line of research, but classical  
 as these publications will forever remain, they for a time retarded  
 the progress of apparatus for practical use, for the reason that  
 they discouraged inventors by the mechanical complications  
 which they apparently ascribed as indispensable to articulate  
 speech. In fact, the perusal of their work left a serious doubt in  
 the mind of many a student, whether there was not something in  
 articulate speech and its audibility by the human ear, beyond the  
 grasp of the mechanical mind of man.

These doubts were still increased by the attempts of Faber to  
 construct a talking machine, after the system of the human organs  
 of speech, a mass of intricate mechanism, levers, bellows, and  
 pulleys, which gave an unearthly rendition of many words and  
 sentences.

But the Bell telephone came, and its greatness consisted not  
 so much in the fact that it carried speech over hundreds of miles,  
 but that it taught how simple a piece of apparatus could produce  
 such perfect results, and that any diaphragm however thick,  
 could be made to set up audible articulate vibrations.

The effect of this lesson was immediate, for hardly had the  
 new wonder become known when an astonishing chain of logic  
 formed in the brain of a distant devotee to science.

On the 30th day of April, 1877, Mr. Charles Cros deposited  
 with the Secretary of the Academy of Sciences in Paris a sealed  
 envelope, containing what in translation reads as follows:

**"PROCESS OF RECORDING AND OF REPRODUCING AUDIBLE  
 PHENOMENA."**

"In general, my process consists in obtaining the tracing of  
 the to-and-fro movements of a vibrating membrane, and the utili-



zation of this tracing for reproducing the same to-and-fro movements, with their relative inherent durations and intensities in the same membrane, or in another adapted for furnishing the sounds and noises which result from this series of movements.

"We are, therefore, concerned with the transformation of an extremely delicate tracing, such as that obtained with a delicate stylus rubbing upon a surface blackened by a flame, to transform, I say, these tracings in relief or intaglio, in resisting material capable of guiding a moving body, which transmits these movements to the sonorous membrane.

"A light stylus is connected with the centre of a vibrating membrane; it terminates in a point (metallic wire, the barb of a feather, etc.), which bears upon a surface blackened by a flame. This surface is a part of a disk to which is given a double movement of rotation and rectilinear progression.

"If the membrane is at rest, the point will trace a simple spiral; if the membrane vibrates, the traced spiral will be undulating, and these undulations represent exactly all the to-and-fro movements of the membrane, with their times and intensities."

Up to this point the apparatus as described would represent a modified Scott phonautograph, in which the cylinder is substituted by a flat disk. Mr. Cros then continues:

"By means of the photographic process which, in fact, is well known, this traced, transparent, undulatory spiral is converted into a line of similar dimensions, in intaglio or in relief, in resisting material like tempered steel, for instance.

"This done, this resisting surface is, by means of a motor apparatus, made to turn and to progress rectilinearly with a velocity like that which was used in the registration.

"If the reproduced tracing is in intaglio, a metallic point (and if it is in relief, a notched finger), held by a spring, bears upon the tracing at one end and is connected at the other end with the centre of the membrane adapted for sound reproduction. Under these conditions, this membrane is not any more acted upon by the vibrating air, but by the tracing controlling the pointed stylus by pulsations exactly like those to which the membrane was subjected in recording, both as to duration and intensity.

"The spiral trace represents the successive equal periods by its increasing and decreasing length. There is nothing inconve-



nient in this if only the outer portion of the rotating circle is used, and if the spirals are close together, except that the central part of the disk is lost.

"In all cases, however, a helical tracing upon a cylinder is much to be preferred, and I am actually engaged in finding a practical embodiment of this."

This paper was only read in open session at the Academy on December 3, 1877, and in the meantime Mr. T. A. Edison appeared with the phonograph.

From what we can learn by published reports, Mr. Edison, some time in the latter part of September in the same year, was at work on an automatic telephone, by which he intended to impress a telephone message upon a strip of tin-foil, and let the indentations thereby produced act upon a variable resistance, such as a lampblack button, and thereby transmit the message over the wire. While one day at work on this, so the report runs, he, perchance, slipped the previously indented slip under the recording stylus which, as in the Scott phonautograph, was connected to the centre of a diaphragm, and then and there occurred the first actual reproduction by mechanical means of words registered before.

The phonograph became then, at once, an accomplished fact, for to such an experienced inventor it must have taken but a moment to mentally cover the cylinder of a Scott phonautograph with tin-foil and to indent the same at right angles to the surface of the cylinder.

Everybody remembers the sensation which the invention produced, and the prognostications which were advanced for it by the scientific press showed that the principle of the apparatus was considered to contain the germ of an ultimate achievement of the most accurate results.

In this respect, as well as in others, there are striking resemblances in the history of the two inventions with which I am dealing.

In both, the original idea emanated from Frenchmen, and both described one process of transmitting, and a different process of reproducing speech. In the Bourseuil telephone there was a contact transmitter and an electro-magnet receiver; in the Cros



phonograph, a written record and an engraved reproducing groove.

In both inventions the first realization occurred in the United States, and was effected with apparatus representing only the reproducer of the original conception. In the speaking telephone, the reproducing electro-magnet of Bourseuil became also the transmitter of Bell, and in the phonograph, the reproducing groove and stylus of Cros became also the record of Edison. Both the Bell and Edison apparatus were accepted for a time as containing the best mechanical and philosophical principle for the highest attainable results. In both, the aim at the beginning was to produce loud sounds, and both eventually contented themselves with a much fainter voice, which then became more distinct in articulation. Finally, in both inventions, the original transmitter was subsequently resurrected, and found to contain a pointer toward a superior principle as a transmitter and recorder, and it only remains now to use a Scott phonautographic record direct for reproduction in order to complete a parallel with the fact that a contact transmitter can also be used as a telephonic reproducer.

In making these parallels, however, I am aware of the fact that Cros had a better idea of a talking machine than Bourseuil had of a speaking telephone.

The paper of Mr. Cros, which can be found on page 1082, vol. 85, of the *Comptes Rendus* of 1877, appears to have been consigned immediately to obscurity. When ten years later, I filed my patent application for the gramophone, not even the **Examiners at the Patent Office** knew anything of Mr. Cros, and **when I mentioned his name** in the first publication of the "gramophone," even those best informed on the subject were surprised. Nevertheless, I considered it a duty to my friends to make the following statement to the Editors of *The Electrical World*, which they published simultaneously with the "gramophone," on November 12, 1887. I said:

"On August 30, of this year, which was three months after the filing of my application for a patent, while in the office of my counsel, Mr. Joseph Lyons, I happened to look through a German scientific book in his possession, and reading up about the phonograph, I came across a remark stating that on April 30,



1877, one, Chas. Cros, deposited at the French Academy of Science a sealed paper which, when opened and read at a subsequent session during that year, was found to contain a description of the author's idea that a photo-engraved phonautographic record, either in relief or intaglio, might be utilized 'for reacting through a stylus on a diaphragm, and by this reaction ought to reproduce the original sound.'

"Surprised as I was at this discovery, I requested Mr. Lyons to find out through his friends in Paris whether and to what extent Mr. Cros had ever carried his idea into practice, and an answer has since come to the effect that Mr. Cros never put his idea into practical operation.

"Whether he was taken aback by the *éclat* which the phonograph produced soon afterward; whether he became discouraged at the practical difficulties, of which I have found many at the outset of all my experiments; or whether he did not appreciate the peculiar advantage of the phonautogramic method—all this does not appear from the meagre accounts so far to hand.

"But although, viewed in the light of equity, he had virtually abandoned his invention at the time when I independently and without knowledge of his prior idea took up the same subject, the fact remains that to *Mr. Charles Cros belongs the honor of having first suggested the idea of, and feasible plan for, mechanically reproducing speech once uttered.*"

As this statement has never been challenged since it was first made, I presume that it is substantially correct.

If we should attempt to carry out strictly the ideas of Mr. Cros, we would find many obstacles to obtaining practical results, and while undoubtedly the correctness of the general principle could be proved, the effects would not be as good even as those obtained by the original phonograph. Even with the application of the various improvements which I originally introduced, the process requires great care, and while this would not have been an obstacle on account of the great advances made in photo-engraving, I have now abandoned the original process altogether, and have substituted one of great rapidity and simplicity.

But to return to the phonograph, we find this apparatus remained in an unsatisfactory and unfinished condition for nearly nine years.

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Among those who believed that ultimately the phonograph could be turned to practical account, was the well-known original patron of the speaking telephone, Mr. Gardiner G. Hubbard, and being also financially interested in it, he, in 1883 or thereabouts, caused the Volta Laboratory Co., an association originally founded by Prof. Bell as a laboratory, from the funds of the Volta Prize awarded to him by the French government, to provide ample funds for the purpose of making an extensive series of experiments with the phonograph.

Prominent among the scientists connected with the enterprise were Prof. Bell, Dr. Chichester A. Bell, and Mr. C. S. Tainter. After two years of ardent labors these gentlemen came to the conclusions:

*First.* That the indenting process had to be abandoned and an engraving process be substituted—*i. e.*, instead of pushing the record surface down with the stylus, as in the original phonograph, it should rather be dug out or graven into.

*Second.* That the best substance, answering also the various other requirements, was beeswax hardened by an admixture of paraffine, or other similar waxy substances.

*Third.* That loud speaking was impracticable, and that the ordinary conversational tone gave better results, although reducing the reproduction to the loudness merely of a good telephone message.

In Patent No. 341,214, of May 4, 1886, issued to Dr. Chichester A. Bell and Mr. C. S. Tainter, the following claims, among others, were granted:

"The method of forming a record of sounds by impressing sonorous vibrations upon a style, and thereby *cutting* in a solid body the record corresponding in form to the sound waves, in contradistinction to the formation of sound records by indenting a foil with a vibratory style, etc.

"3. The vibratory *cutting* style of a sound recorder; substantially as described.

"7. A sound record consisting of a tablet, or other solid body, having its surface *cut or engraved* with narrow lines of irregular and varied form, corresponding to sound waves substantially as described.

"9. The method of forming a sound or speech record, which



consists in engraving or cutting the same in wax, or a wax-like composition; substantially as described."

As a final result of all their labors, there issued in the spring of 1887, the graphophone, the first really practical apparatus of the phonograph type, and which was exhibited to admiring crowds in Washington and elsewhere.

To those who have never heard this instrument, I will repeat what I wrote about its performance in November, 1887, namely, that it appears to be the best instrument to take down business letters or dictations of any kind, in which the recognition matters little, so long as the words can be made out; also, that the reproduced sound is as loud as that of a good telephone message, but that the distortion produced by the engraving is sufficient to make the voice unrecognizable save to a strained imagination added to a previous knowledge of the author of the voice. The record ground of this machine is a thin pasteboard cylinder covered with wax.

Soon after the graphophone became generally known, Mr. Edison, evidently encouraged by the results obtained in this instrument, took again to experimenting with the phonograph, and, after trying wax covered with tin-foil for indentation, he abandoned that mode of recording, and also settled upon a cylinder of wax and the graving-out process, thus confirming the correctness of Bell and Tainter's conclusions, and the new Edison phonograph and the graphophone appear to be practically the same apparatus, differing only in form and motive power.

I now come to the subject of the evening, the Gramophone.

In my telephonic studies, I had become familiar with all the causes influencing the transmission and reproduction of the voice, and what had at all times struck me as forcibly as anything in telephonic phenomena, was the fact that the self-induction of long iron wires or of polarized electro-magnets acted so detrimentally upon the articulation. Electrical resistance alone would simply have weakened the sound, but self-induction meant retardation, and this distortion of the transmitted waves which varied in length and amplitude. To appreciate fully what an extremely small amount of energy ordinary speech possesses mechanically, let us consider a few well-known facts:

A puff of air, not strong enough to extinguish a candle-flame,



when blown across an empty bottle or into a whistle will produce a sound which may be heard over a hundred feet away. The amount of electricity needed to operate audibly a magneto-telephone, is said to be less than one-millionth part of the electricity of a standard Daniel cell.

In considering such and other facts it became evident to me that if such delicate energy, subdivided into maybe several hundred waves, should indent or engrave itself into a solid body, it needed but very slight mechanical resistance to modify considerably the character of the sound vibrations. For what self-induction is to the telephone circuit, the variable resistance which impressible material offers to indentation or engraving at various depths is to the phonograph record sheet. Neither is proportional in direct ratio to the expended energy and must give cause, aside from a reduction in size of the sound characters, also to a distortion of the same.

Your own Prof. Houston, in his learned remarks in the JOURNAL OF THE FRANKLIN INSTITUTE of January, 1888, says:

"The difficulties just pointed out, it would seem, must exist in any instrument, however improved in its mechanical structure, if it make the record on the Phonogram at right angles to the surface thereof. Of course, if a substance was discovered for such a surface, that offered a resistance to indentation exactly proportional to the depth of such indentation, the difficulty would, to a great extent, be removed."

All the experiments which were made with the phonograph and the graphophone, confirmed the correctness of all these assertions, for the louder it was necessary to speak when recording, the less distinct became the articulation of the reproduced sound.

A change for the better was, therefore, to be obtained:

*First.* By tracing the vibrations, as in the old phonautograph, parallel to the record sheet.

*Second.* By reducing the resistance offered by the record medium to as near to nothing as possible.

Both principles, although not emphasized, are contained in the Cros document; but for my part, I found that merely smoked surfaces were utterly impracticable, because, if sufficiently black for a photo-engraving, and with the extremely small sizes of



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waves obtained with records that are adaptable for the reproduc-  
tion of good articulate speech, the record lines were ragged, and,  
under a magnifying glass, looked like a set of parallel saws whose  
teeth would form a grating sound, which nearly drowned the  
articulation.

I observed, however, in my experiments, that the grayish  
deposit of lamp-black which is obtained from the centre of a  
kerosene flame was more oily and gave a somewhat sharper line  
than the deep black deposit caused by smoking with the top of  
the flame, and this led me to the highly beneficial process of  
oiling the plate prior to smoking the same, either by applying  
printers' ink or artists' paint by means of a printers' roller or by  
brushing oil over it. The smoke would then amalgamate with  
the oil and forms a *fatty ink* of a rather dry consistency, which,  
when crossed by a stylus, shows, even under a microscope, a  
sharply cut transparent line.

I still employ this process for small test plates and prepare  
them as follows: One part of paraffine oil is mixed with twenty  
parts of benzine or gasoline. This mixture is poured on and off  
a glass disk, when the benzine evaporates leaving an extremely  
thin layer of oil. This is held over a smoky flame and moved to  
and fro until the surface looks *just* dry. The application of artists'  
paint with a roller prior to smoking is still better.

I also adopted for the gramophone a disk of glass as a support  
for the smoke deposit, traced the sound record from below so that  
the displaced lamp-black should fall down, varnished it after the  
tracing was done and used this disk as a negative without, there-  
fore, needing a camera or photographic chemicals outside of the  
chrome-gelatine or chrome-albumen used in developing a raised  
picture. I would refer, for a detailed account, to the already men-  
tioned issues of *The Electrical World* and the JOURNAL OF THE  
FRANKLIN INSTITUTE.

The lesson of simplicity which the telephone was continu-  
ously preaching caused me at an early day to look for a simpler  
plan to attain my purpose, and in the specification originally filed  
by me I said:

"This record (meaning the phonautogram) may then be  
engraved either mechanically, *chemically*, or photo-chemically."  
And although for a long time without much hope for success, the



purely chemical process of direct etching haunted me continuously, and was repeatedly suggested by others.

But it was easier suggested than carried out, because under the principles of the gramophone the etching ground was to offer practically no resistance to the stylus, and to make one which had no resistance mechanically, but did resist the etching fluid after the tracing was done, was the problem to be solved.

You will readily see, that if we can cover, for instance, a polished metal plate with a delicate etching ground, trace in this a phonautogram and then immerse the plate in an etching fluid, the lines will be eaten in and the result will be a groove of even depth such as is required for reproduction; such a process, of course, would be much more direct and quicker than the photo-engraving method.

In nature provision seems to be made for all the wants of mankind, and confident in this belief, I kept on trying to find a trail which led to promising results, and I have the honor to-night, for the first time, to bring before you this latest achievement in the art of producing permanent sound records from which a reproduction can be obtained, if necessary, within fifteen or twenty minutes, and which can be accurately multiplied in any number, by the electrotpe process. It may be termed, in short, *the art of etching the human voice*.

The etching ground which I use is also a fatty ink, and one of the best I have found thus far is made by digesting pure yellow beeswax in cold gasoline or benzine.

Benzine, in a cold state, will not dissolve all the elements of the wax, *but only a small part*, namely, that which combines with the yellow coloring principle, and the resultant and decanted extract is a clear solution of a golden hue, which gradually becomes bleached by exposure to light. The proportions which I use are one ounce of finely scraped wax to one pint of gasoline. The bottle containing the mixture must be repeatedly shaken, and, after the white residue has settled, the clear fluid is decanted or drawn off by a siphon.

I then take a polished metal plate, generally zinc, and flow the fluid on and off, as if I would coat with collodion. The benzine will quickly evaporate, and there remains a very thin layer of wax, iridescent under reflected light, not solid as a coating pro-



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duced by immersion in a melted mass, but spongy or porous, and extremely sensitive to the lightest touch.

Partly on account of the too great sensitiveness of a single film, and also as an additional protection against the action of the acids employed in the subsequent etching, I may apply a second coating of the solution, and this double coat I find to answer all requirements.

The protection which this porous or spongy wax affords from the acid, is mostly due to the fact that watery solutions assume the spherical state on the film, while at the lines where the wax is disturbed the acid enters freely, and attacks the metal below.

A difficulty, which only a short time ago appeared insurmountable, was the accumulation at the point of the stylus, while tracing the sound record, of filamentary particles of dust which exist in the wax solution, and which being ever present in ordinary rooms, settle down and adhere to the film. These dust particles are so fine that they cannot, as a rule, be detected by the most searching inspection of the prepared plate; but they become very conspicuous, and a very serious source of annoyance when a long record is being made.

It must be borne in mind that the contact which the tracing stylus makes with the record surface, is obtained by the elastic pressure from a piece of hair-spring backed by a narrow blade of writing paper, and which pressure amounts to about five grains. Therefore, as this stylus passes through the fatty ink or other ground, and traces the fine undulatory line, the dust particles, as well as small portions of the displaced ink or wax adhere to and accumulate at the point of the stylus and are dragged along, and the record thereby becomes blurred and indistinct.

I have discovered an effective means for overcoming this difficulty, and it consists in applying to the record surface a fluid that slightly adheres to the etching ground, and keeps it wet while the record is being made. I have found commercial alcohol to be very effective for this purpose, and it is used by pouring it over the plate just before the sound record is made. The alcohol, of course, immediately commences to evaporate, but not rapidly enough to disappear entirely before the record is finished, and there is no difficulty in adding more alcohol while the plate revolves. Under this condition, the point of the stylus remains



perfectly clean, and it seems as if the dust particles had not been present at all.

The theory by which I explain this result is, that the alcohol, so to speak, lubricates both the surface and the stylus, and prevents the adhesion of the filaments to the latter. At any rate, the application is highly beneficial, and the resulting line is so sharp and fine that it has to be widened in the subsequent etching process, in order to permit the acid to bite at sufficient depth. It can also be proved that the resistance of the wax film is decreased by the presence of the alcohol, but when this has evaporated the wax film appears to be in precisely the same condition as before, even showing again the iridescent colors which disappeared on the application of the alcohol.

The film of wax being so thin, it is almost transparent, and if the record was made on this it could barely be detected. As, however, it is sometimes desirable to examine the record prior to etching the same, I can smoke the etching ground slightly by holding it high above burning camphor, so as to prevent a heating and melting of the spongy wax, and the alcohol poured afterwards over this smoked surface does not seem to wash off any of the soot particles.

We now come to the important process of etching the record. Etching is done on steel, copper, or brass with nitric acid, perchloride of iron, or with a mixture of muriatic acid and chlorate of potash known as Dutch mordant. In modern photo-engraving nearly all the etching is done on zinc by means of diluted nitric acid, and these materials are preferred on account of their being cheaper than any other, and zinc is a metal easily obtained with smooth and even facings. In etching, however, on zinc, it is necessary continually to brush away the hydrogen bubbles which form and adhere to the lines, and as the etching ground is usually of firm and solid material (like asphaltum, hard wax, pitch, or rosin mixtures) no harm results from the brushing necessary in order to obtain sharp edges along the lines.

Desiring to avail myself of the advantages offered in zinc plates, I soon found that no etching fluid was known that would be to zinc what perchloride of iron was to copper—namely, etch cleanly and without the appearance of hydrogen bubbles. To apply the brushing to the delicate spongy wax film



I employed was out of the question, as the first touch would wipe away the whole ground, and to permit the formation of hydrogen bubbles without brushing them away meant uneven and ragged lines and a distorted record.

While studying this matter over it occurred to me to, so to speak, depolarize the zinc plate by adding to the acid, bichromate of soda which I thought might prove efficient, as it does in the galvanic battery, to prevent the appearance of the bubbles while etching the zinc. It took, however, a comparatively large quantity of the bichromate to answer my purpose, so much that I concluded that the mixture had all the conditions of a chromic acid, or at least of a mixture of chromic acid and nitrate of soda. When I thereupon substituted a solution of chromic acid pure and simple, I found this to be a most excellent etching fluid, and that is what I am now using—namely, a solution of one part by weight of dry chromic acid dissolved in three parts by weight of water. I use the commercial acid, such as can be obtained from Churchman & Co., of this city, at twenty-five cents a pound. Such a solution etches on zinc a sharp and clearly cut line, and no hydrogen appears during the etching.

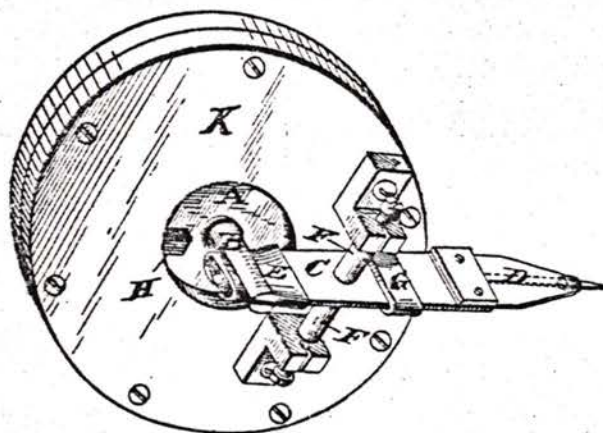
The back of the zinc plate had previously been painted with protecting varnish or molten beeswax, and within from fifteen to twenty minutes from the time of immersion in the chromic acid solution, and without disturbing it a cleanly cut groove of sufficient depth is obtained for reproduction. This groove may then be deepened in the ordinary way of rebiting by covering the facing of the plate with rosin dust, heat the same, and then immerse in diluted nitric acid. Under these conditions the brush may be applied until the necessary depth is obtained, generally in about one to three minutes according to the strength of the etching fluid. I have used stronger solutions of chromic acid with no ill effects and a more rapid etching, and there seems to be a wide margin on this point, provided the plate is watched during the etching process. The lines very gradually widen in the course of the etching, but the upper edges of the grooves remain perfectly parallel and sharply defined.

Before proceeding with a practical demonstration of the whole process, I will now describe the most important apparatus of the gramophone, the recorder. The translation of the movements of



the diaphragm into the same movements at right angles, and with the extreme smallness of the motion and the liability of distorting them, adding to them, or detracting from their value in translating them, requires greater care to guard against error than an uninitiated observer would suppose, and when we examine the complex and extremely delicate mechanism which nature has provided in the human ear for giving a correct translation of air vibrations into nervous vibrations, it behooves us to be careful in the application of every day mechanics. Free as the telephone is, comparatively, from mechanical incumbrances, it is deficient in articulation of the consonants, and with the simplicity of mounting as required in the phonograph and graphophone, these difficulties of recording proper do not exist, and are shifted to the other portions of their construction and manipulation. In having attempted, therefore, to do justice to all sources of error I am not yet prepared to say that my present recording apparatus is constructed and adjusted to the greatest attainable correctness. Those who are familiar with the tediousness of original research will admit that a new subject of this kind cannot be solved in its entirety within the space of a few months, and what I bring before you to-night being the hasty results of a new machine finished but ten days

FIG. 2.



ago, should be measured rather by the possibilities it opens, than by the results so far attained, whatever merit you may accord to them.



My impression, however, is that there is very little of lost or added motion in my present apparatus, and whatever imperfections may exist must be looked for in the mode of reproducing the sound, rather than in the recorder (Fig. 2).

*K* is the diaphragm box; *A* is the centre portion of the diaphragm; *B* is a brass post screwed to the diaphragm and slotted above; *E* is a piece of rubber tubing held in the slot and holding one end of the stylus *C*. This stylus is made of stiff metal and is pivotted by the steel pivots *FF*. *D* is a blade of writing paper reinforced by a piece of hairspring which extends, and forms the tracing point. *G* is a piece of rubber tubing around the stylus which dampens its musical vibrations; *H* is a piece of felt damper between the diaphragm and the diaphragm box, which acts as a general damping device.

The whole is mounted on a sliding carriage, which is drawn by clock-work across the disk, while the latter revolves at the rate of about thirty revolutions per minute.

#### DEMONSTRATION.

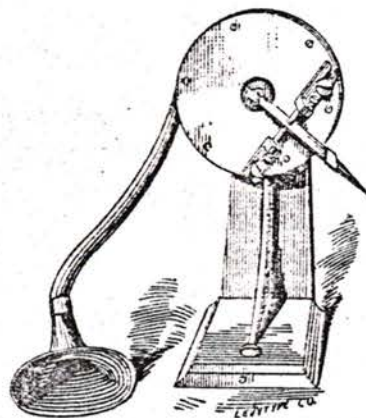
While the plate is being etched I will now let you listen to some phonautograms which I prepared in Washington within the last two weeks. The reproducing apparatus, or sounder, is constructed on precisely the same principles as the recorder, but of smaller dimensions and with more rigid mountings, so rigid, in fact, that if it was used as a recorder it would barely show undulations on a smoked surface when shouting into it.

The stylus is tipped with iridium like the points of a gold pen, the object of this being to prevent abrasion by the continuous friction with the hard record.

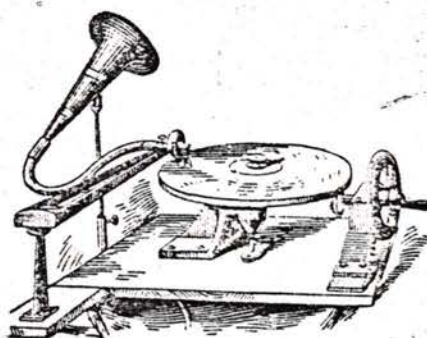
In reproducing the sound, I find that it is louder with hard contact substances, like metal, than with soft ones like rubber or plaster-of-Paris. Hard metals like copper, nickel, or brass, sound louder than zinc or type-metal, but the scraping sound, which is due to friction, is also increased unless the record surface is smooth and very highly polished.

But when an iridium-pointed stylus is rubbed over clean glass a scraping sound is barely perceptible. I am now in communication with a firm that is making ornamental glass tiles by im-

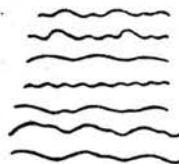




Recording Diaphragm and Stylus.



Reproducing Apparatus.



Record lines (magnified 6 diameters).



pressing upon red-hot glass plates fancy designs in relief or intaglio by strong pressure. You will readily see that if on the same plan we can impress a matrix showing the sound record in raised lines upon a glass plate, we would get a groove, in glass, giving a loud reproduction with a minimum of disturbing sound due to friction.

In the description of November 12, 1887, I advanced the idea of mounting the sounder on a carriage and rails, and have the record groove itself be the screw which was to guide the point of the stylus across the disk from periphery to centre. This has been improved upon by Mr. Werner Suess, the gentleman with me here to-night, and who is the mechanician of our little shop in Washington. He suggested to mount the sounder on a pivot at some distance from the disk and then let the reproducing groove guide the sounder across the disk over an arc of flat amplitude. This happy idea is embodied in the present apparatus, and is a very ingenious adaptation indeed.

#### REPRODUCTION.

It is, I trust, pardonable if I close by foreshadowing to a certain extent the practical applications of the gramophone.

A standard reproducing apparatus, simple in construction, and easily manipulated, will, at a moderate selling price, be placed on the market.

Those having one, may then buy an assortment of phonauto-grams, to be increased occasionally, comprising recitations, songs, and instrumental solos or orchestral pieces of every variety.

In each city there will be at least one office having a gramophone recorder with all the necessary outfits. There will be an acoustic cabinet, or acousticon, containing a very large funnel, or other sound concentrator, the narrow end of which ends in a tube leading to the recording diaphragm. At the wide opening of the funnel will be placed a piano, and back of it a semicircular wall for reflecting the sound into the funnel. Persons desirous of having their voice "taken" will step before the funnel, and, upon a given signal, sing or speak, or they may perform upon an instrument. While they are waiting the plate will be developed, and, when it is satisfactory, it is turned over to the electro-



typer, or to the glass moulder in charge, who will make as many copies as desired.

The electrotype shells are mounted on thick pasteboard, and this is backed by a stiff piece of sheet metal. There is another process which may be employed. Supposing that his Holiness, the Pope, should desire to send broadcast a pontifical blessing to his millions of believers, he may speak into the recorder, and the plate then, after the words are etched, is turned over to a plate-printer, who may, within a few hours, print thousands of phonautograms on translucent tracing paper. These printed phonautograms are then sent to the principal cities in the world, and upon arrival they are photo-engraved by simply using them as photograph positives. The resultant engraved plate is then copied, *ad infinitum*, by electrotyping, or glass moulding, and sold to those having standard reproducers.

Prominent singers, speakers, or performers, may derive an income from royalties on the sale of their phonautograms, and valuable plates may be printed and registered to protect against unauthorized publication.

Collections of phonautograms may become very valuable, and whole evenings will be spent at home going through a long list of interesting performances. Who will deny the beneficial influence which civilization will experience when the voices of dear relatives and friends long ago departed, the utterances of the great men and women who lived centuries before, the radiant songs of Patti, Campanini, Nieman, and others, the dramatic voices of Booth, Irving, and Bernhardt, and the humor of Whitcomb Riley can be heard and re-heard in every well-furnished parlor?

Future generations will be able to condense within the space of twenty minutes a tone picture of a single lifetime. Five minutes of the child's prattle, five of the boy's exultations, five of the man's reflections, and five of the feeble utterances from the death-bed. Will it not be like holding communion even with immortality?

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POSTSCRIPT: One of the peculiarities inherent with the gramophone is the possibility to enlarge the original sound by enlarging the printed vibratory characters of speech and then photo-engrave



the same. In this manner it should be possible to get the reproduction at a much greater volume than the original sound. It would be interesting if some day speakers in a large hall would prefer to do their talking by machine, or to send speeches to a convention which they were unable to attend in person.

E. B.

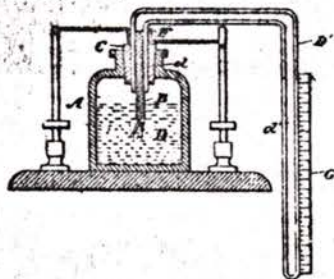
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[At the close of the paper and after the exhibition of the apparatus, Prof. E. J. HOUSTON moved a vote of thanks to MR. BERLINER for his interesting and valuable communication. The motion was carried unanimously, and the meeting was adjourned.]



taneously, since the pressure required to charge the battery is higher than that for which the lamps are intended.

When the switch lever is in the position 3, shown in the diagram, Fig. 2, both lamps and battery are cut off from the dynamo. If the lever be put into position 1, the current from the dynamo entering by terminal A flows through the ammeter into the battery through the fuse F, and returns terminals C to the dynamo. The fuse is a thin copper wire, not fastened by screws, but soldered to the mains to insure good contact. When the switch lever is placed in position 2, the current from the dynamo passes by terminal B through the switch into the positive main of the lamp circuit, and back by the negative main and terminal C to the dynamo. When the switch lever is placed horizontally into the position 3 the current from the battery passes through the ammeter, and through the



FORBES' NEW COULOMB METER.

switch to the positive main of the lamp circuit, and back direct to the negative terminal of the battery.

It will thus be seen that by manipulating the switch on the dynamo and that on the main switch board, the attendant can either charge the batteries, light direct from the dynamo, or light from the batteries, without having to alter the speed of the engine. It might, however, happen that the switch on the dynamo is set for the high pressure, and that the attendant forgets to alter it to the low pressure position when he puts the switch on the battery. In this case, as the dynamo produces a pressure of 65 volts, the lamps would be over-strained, and to prevent this the third switch lever, mentioned above, has been added on the dynamo. It will be noticed that when the switches controlling the shaft current are set correctly, the third lever, through which the main current passes, interrupts the main circuit, and thus it is impossible for the attendant to get any light at all if he has neglected to place this switch to the position for compound working.

On the switchboard is fitted a voltmeter, which, by means of the small triple contact switch s, can be connected with the different wires, so that one voltmeter suffices for ascertaining the pressure in the various circuits. The connections of the voltmeter switch s with the various circuits are shown by dotted lines. The dynamo is of the "Kapp" type, designed for an output of 80 amperes at 55 volts, or 40 amperes at 65 volts, the speed being in both cases 310 revolutions per minute. The armature is coupled direct to the crank shaft of an "Allen" double acting compound engine, with 4 1/2-inch and 8-inch cylinders by 4-inch stroke. The working parts have been designed for the full steam pressure of 160 lbs. carried in the main boilers, though 100 lbs. of steam is sufficient to obtain the full output from the dynamo.

#### Prof. Forbes' Latest Electric Meter.

Our readers will recall to mind the ingenious electric meter<sup>2</sup> invented by Prof. George Forbes, of London, in which the air currents rising from a conductor heated by the electric current are made to drive a light mill-wheel, the revolutions of which are recorded and thus serve as a measure of the current passed through the meter.

Recently Prof. Forbes has applied the same principle of utilizing the heat produced in a conductor in the design of a new meter. In this instrument the heat produced evaporates a liquid contained in a closed vessel and the vaporized liquid is then condensed in another vessel, the quantity of condensed liquid being a measure of the current passed through the meter.

The accompanying engraving shows the meter diagrammatically. As will be seen it consists of a glass tube D bent twice at right angles to form a short leg d, which passes through the stop C and opens into the vessel A, and a longer leg d', which passes outside the vessel A, and is closed at its lower end. A wick E of absorbent material, such as cotton, dips into the liquid in the vessel A and projects up into the leg d of the tube. A coil of wire F is wrapped around the outside of leg d, and the current to be measured passes through this coil, which is made of higher resistance than the rest of the circuit, so as to be more readily heated by the current. A scale G allows the amount of liquid in leg d' to be readily gauged.

The operation of the meter will now be readily understood. The liquid in the vessel A is absorbed by wick E,

and the heat from the coil F produces an evaporation of the liquid in the wick. The vapors created pass over into the leg d' of tube, are therein condensed, and the amount of liquid collected in the tubes serves as a measure of the quantity of electricity which has passed through the coil.

The instrument is said to be accurate, and to read proportionally over wide ranges of current.

#### The Improved Gramophone.

In November of last year we published the researches of Mr. Emile Berliner, of Washington, in apparatus for the recording and reproducing of articulate speech and other sounds. Since that time Mr. Berliner has been occupied in further developing the invention, and has brought to bear on the subject new ideas which not only have simplified the manipulation of the process, but also wonderfully improved its efficiency. We had opportunity last week to witness a private performance of the improved machine in this city by Mr. Berliner, and the results which he obtains with the new apparatus are indeed marked to an extent which makes it certain that the aim of the inventor to reproduce the human voice in its natural loudness and with an absolute recognition, is very nearly accomplished. We have heard songs every word of which could be plainly understood, and so loud that going out of the room and into the hall, 30 feet from the instrument, we could still plainly hear the same. A song by a child 12 years old, was reproduced with such marked characteristics that any body without knowing who sang it could not but have made out from the way it was rendered that it was a child's voice. There were also songs with organ accompaniment, cornet solos, duets, plantation songs by a negro, all of which exhibited the peculiar characteristics in each case. We are assured by Mr. Berliner that the recognition of the voice by persons knowing the performer is absolute. He has cited to us a case where a child seven years old has recognized his father's voice without knowing beforehand that his father had spoken into the machine, and without having an idea that that voice would be reproduced. This is important, inasmuch as it clearly proves that the gramophone has arrived at a very high state of perfection. Considering the short time that has elapsed since Mr. Berliner commenced this most interesting original study, there is no doubt that the next month or two will see the achievement of the most perfect results.

As our readers may remember, the gramophone is based not so much upon the principle of the modern phonograph

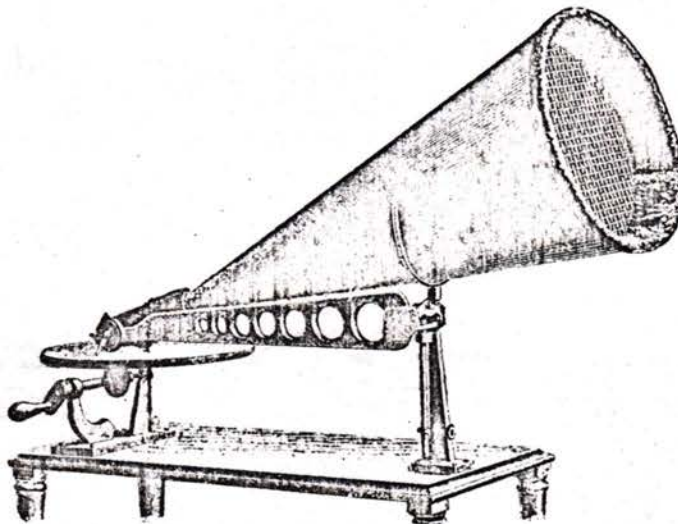
time when Mr. Cros had not only long since abandoned experiments in this line, but even when Mr. Cros' paper was almost unknown to the scientific world.

The first performance by the gramophone last year was effected with a disc in which the phonautographic record had been engraved by the photo-engraving process, but since that time Mr. Berliner has adopted a much simpler plan to arrive at the same results, namely, by a method of etching the record into metal.

We had occasion to witness a demonstration by Mr. Berliner of this most curious and blithely interesting process. He took a small disc of zinc, poured upon it a quickly evaporating fluid which left an exceedingly thin layer of spongy and fatty wax, traced into this layer a phonautographic record and etched the same with chromic acid. In less than 15 minutes, on examining the zinc plate through a magnifying glass, we observed the beautiful tracings of articulate speech as a line sunken below the surface of the metal with all its delicate waves in most peculiar varieties as representing the various sounds of the human voice.

In practice, a disc of zinc about 12 inches in diameter is clamped down upon a table which revolves by clockwork at a velocity of about 30 revolutions a minute. The recorder with its diaphragm and stylus is moved across the disc from periphery to centre by a very slow movement, and as a result there is obtained a spiral, showing the tracings of the voice, which affects the recording diaphragm as the disc revolves. This plate is then plunged into a solution of chromic acid and left in there for about 15 minutes when it is taken out, washed off, and cleaned. It is then ready for reproduction. When found satisfactory it may be multiplied either by the electroplating process, or by inverting the record upon celluloid, plaster of Paris, sealing wax, type metal, or any other substance capable of being molded with ease. The copies thus obtained from the original plate reproduce the voice with the same fidelity as the original record.

Notwithstanding the simplicity of the etching process that of the reproducing apparatus is still greater. As shown in the accompanying engraving there is no gear or machinery of any kind except a small friction wheel which revolves the table having clamped down upon it the reproducing disc. The reproducing stylus connected to the diaphragm is permitted to rest by its own gravity in the reproducing groove of the record, and when the plate is made to revolve it not only vibrates the diaphragm and reproduces the sound but it also leads the diaphragm box across the disc from periphery to centre so that the



THE IMPROVED BERLINER GRAMOPHONE.

as upon that of the Leon Scott phonautograph which was patented in France in 1887. The phonautographic record consists of a wave line upon a surface, and is not a record of an indentation into a material or the record of a process of cutting or graving out. It was reserved to a Frenchman, namely, Charles Cros, to first conceive the idea of utilizing the Scott phonautograph, or Scott phonautographic record, for the reproduction of speech. In a paper read by Mr. Berliner on May 16, 1888, before the Franklin Institute in Philadelphia, he published the full account of Mr. Cros' ingenious conception.

According to Mr. Berliner's statement, which can be verified by referring to Vol. 85 of the *Comptes Rendus* of 1877, page 1,082, Mr. Cros, in April of that year, laid down the correct principles underlying the gramophone, namely, to engrave the Scott phonautographic record into solid material and to use this engraving for reproducing the sound which made the record. It does not detract from Mr. Berliner's credit that he independently and without previous knowledge of Mr. Cros' prior conception resurrected this idea ten years later, and at a

record groove serves at the same time as a screw instead of a separate gear. The recording diaphragm and stylus are attached to a lever which is pivoted at a distance of about 18 inches from the centre line of the disc, and as it slowly swings across the disc it describes an arc of very flat amplitude. It may be objected that the motion given by the hand to the disc would not be sufficiently regular; but while it is true that it would be desirable to have a motor attached to the machine, there is no difficulty whatever in revolving the disc regularly by hand, and by hanging up a small pendulum to swing before the eyes of the manipulator he can regulate the revolving motion by the swinging of the pendulum.

Every disc or "phonautogram," as Mr. Berliner calls it, has engraved at its centre the name of the piece which it reproduces, and also the number, 40, 50 or 60. This indicates that the recorder moved at a velocity of 30 revolutions a minute, so that wherever a disc may be used for reproduction people will know at what velocity to revolve the disc in order to obtain an accurate reproduction of pitch and quality.



**Specification, Including Description  
and Claims on Application for Let-  
ters-Patent of the United States  
Covering the Mechanical Feed De-  
vice of the Talk-O-Phone.**

My invention relates to certain improvements in talking machines employing a disk record, and it has for its main object to provide positive mechanical means for propelling the reproducer carrying arm across the face of the record at a rate corresponding to the record grooves.

A further object is to provide means whereby the reproducer is rigidly locked against lateral movement in a direction outward from the center of the record so long as the stylus of the reproducer is in contact with the record; and also to provide means whereby it becomes necessary to raise the stylus out of contact with the record when the reproducer is moved across the face of the record.

A further object consists in providing a simple and easily operated adjustment whereby the movement of this reproducer arm may be regulated and varied to adapt my invention for the use of the various makes of records.

In the ordinary forms of disk talking machines the reproducer carrying arm is capable of free lateral movement across the face of the record while the stylus of the reproducer is in contact with the record groove. This condition oftentimes results in irreparable damage to the record, since the operator, through ignorance or carelessness, will sometimes forcibly move the stylus across the record grooves and thereby break down the walls of said grooves. Where my invention is employed it is imperative that the stylus be lifted from contact with the face of the record before the return movement of the reproducer arm can be accomplished.



Of the various makes of disk records on the market, the American and Columbia are molded with approximately 100 undulatory grooves to the inch, the Victor and Zonophone with approximately 98 to the inch, and the Favorite and Leeds records with approximately 84 to the inch, so that it is apparent that if the reproducer arm and reproducer were propelled at an invariable rate of movement, the machine would be adapted for the use of one make of record only, or such records as have the same number of grooves to the inch. In my invention I provide means for varying the movement of the reproducer arm at will, the necessary adjustment to adapt the machine for any make of record being readily accomplished.

In carrying out my invention, I employ the novel combination, arrangement and the details of construction hereinafter shown, described and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a plan view of a disk talking machine embodying my invention; Figure 2 is a side elevation of the same; and Figure 3 is enlarged elevation, partly in section, showing the means for imparting movement to the swinging reproducer arm.

Referring to the drawings, 1 is the casing of a talking machine adapted to contain a spring motor of any ordinary or preferred construction, 2 being the vertical spindle of said motor extending through the top of the casing and adapted to carry the turn-table 2. Four indicates the swinging reproducer arm pivoted at one end at 5 upon a bracket 6 and having free vertical and lateral movement upon its pivot. At the outer end of the reproducer arm is mounted the reproducer 7 carrying the usual stylus 8 adapted to move across the face of the record and engage the record grooves; 9 is a bevel gear firmly secured upon the vertical spindle



2, and said gear meshes with a bevel gear 10 secured upon a horizontally rotatable spindle 11 provided with a screw thread or worm 12 which engages a worm gear 13. Rotating with and fixed upon the worm gear 13 is a pinion 14 meshing with a gear 15 carrying a swinging arm 16, disposed below the swinging reproducer arm and swinging in a direction opposite thereto. The arrangement of the gearing is such that when the motor of the talking machine is operated and the turn-table spindle rotated at the usual speed, the rotation of the gear 15 and the arm 16 is so slow as to be nearly imperceptible. Arm 16 is of tubular construction, as plainly shown in Figure 3, and the same is provided with an elongated slot to permit free movement along the same of a stem 18 extending downwardly from the reproducer arm. Stem 18 terminates at its lower in an enlargement at its lower end having the form of a ball nicely fitting the interior of the tubular arm 16. By this construction the stem 18 is permitted to slide along the tubular arm 16 with a minimum of friction, and the connection of the reproducer arm with the arm 16 is effected. Stem 18 is secured at its upper end to a block 19 adjustable mounted upon the reproducer arm at a point approximately midway between the ends of said arm, said block being capable of adjustment away from or toward the pivot of said arm, a set screw 20 securing the block in any of its adjusted positions. Carried by the block 19 is a pointer 21 moving along a plate 22 secured upon the reproducer arm, and upon said plate are indicated, preferably by initial letters, the various makes of records, as plainly shown in Figure 2, there being vertical grooves beside the letters on the plate to locate the exact position to which the pointer is to be moved. The inner end of tubular arm 16 is pivoted to a



spring-pressed link 23, the same have a free vertical movement upon its pivot, as indicated in dotted lines "a" Figure 2, and being therefore free to vibrate in unison with the reproducer arm to adapt itself to unevenness in the record surface. Link 23 is in turn pivoted to a sleeve 24, loosely mounted to permit free movement upon a stud 25 which also supports the gear 15. Link 23 is provided with a downwardly projecting tooth 26 adapted to engage the teeth 27 of an annular ratchet 28 an upper face of the gear 15, being normally forced into engagement with said ratchet by a spring 29. Between the joined ends of the tubular arm 16 and the link 23 is an angular space 29, so that, when the reproducer arm is raised to lift the reproducer from the record, the arm 10 will initially take the position in dotted lines "b," Figure 3. During this operation, the link 23 is still in engagement with the ratchet 28, the reproducer arm being consequently locked against lateral movement. When the arm 16 has attained the position "b," the angular space between the ends of the arm and the link will be closed, the ends being in close contact. Further lifting of the reproducer arm will raise the arm 16 above the position "b" and cause the link 23 to be disengaged from the ratchet 28, and said link being pivoted to the sleeve 24 which has a free rotary movement upon the stud 25, the reproducer arm may be freely moved upon its pivot.

In the operation of my invention, we will assume that an American record is to be reproduced upon the machine. The block carrying the stem 18 is adjusted upon the reproducer arm to the position shown in Figure 2 and secured in said position, the exact point being indicated by the letter A upon the plate secured upon the arm. After starting the motor which propels the turn-table, the reproducer arm is raised and the stylus of the reproducer placed in the record groove. The operation of the



motor will actuate the tubular arm 16, causing the same to swing slowly in the arc "5," Figure 1, and positively propel the reproducer arm across the face of the record at a rate corresponding to the record grooves. By adjusting the block carrying the stem 18, to vary the distance of said block from the pivot of the reproducer arm, the rate of the movement of the reproducer arm may be made to correspond to the pitch of the grooves in the various makes of records. When the reproduction is completed, the reproducer is removed from contact with the record face by lifting the reproducer arm, and since, as, hereinbefore described, said arm must be raised to a considerable height above the record face before it can be returned to its original position, the possibility of damaging the record grooves is eliminated.

It will thus be seen that I provide means for locking the reproducer arm against the manual movement in a lateral direction while the stylus is in contact with the record, and that damage to the record is thereby insured against; and that I provide positive mechanical means for propelling the stylus carried by the reproducer across the face of the record in accordance with the record grooves; and further that I provide means whereby the rate of the movement of the reproducer arm may be varied to correspond to the pitch of the grooves in the particular record employed upon the machines.

Having described my invention, what I claim and desire to secure Letters Patent is—

1. In a talking-machine, a swinging reproducer arm, and a rotative non-supporting part connected with said arm to impart swinging movement thereto.

2. In a talking-machine, a rotatable record disk, a swinging reproducer arm, and a rotative non-sup-



porting part, connected with said arm to impart swinging movement thereto in accordance with the record grooves.

3. In a talking-machine, a rotatable record disk, a swinging reproducer arm, a rotative non-supporting part connected with said arm to impart swinging movement thereto in accordance with the record grooves, and means for varying the movement of said arm.

4. In a talking-machine, a rotatable record disk, a swinging reproducer arm, a rotatable non-supporting part connected with said arm to impart swinging movement thereto in accordance with the record grooves, and adjustable means carried by said arm to vary its movement.

5. In a talking-machine, a swinging reproducer arm, a second arm mounted to swing below the reproducer arm and having operative connection therewith, and means for actuating said second arm.

6. In a talking-machine, a swinging reproducer arm, a second arm mounted below said reproducer arm and having a sliding connection therewith, and means for actuating said second arm.

7. In a talking-machine, a swinging reproducer arm, a second arm connected with the reproducer arm and mounted to swing below the same in a direction opposite thereto, and means for actuating said second arm.

8. In a talking-machine, a swinging reproducer arm, a slotted tubular arm mounted to swing below said reproducer arm a connection carried by said reproducer arm engaging the tubular arm through the slot therein, and motor-driven means for actuating said tubular arm to impart swinging movement to the reproducer arm.



9. In a talking-machine, a swinging reproducer arm, a tubular arm mounted to swing below said reproducer arm, said tubular arm having an elongated slot, a connection between the reproducer arm and the tubular arm comprising a stem extending through the slot in the tubular arm and having a ball-shaped end to traverse the interior of the tubular arm, and motor-driven means for actuating said tubular arm.

10. In a talking-machine, a swinging reproducer arm, a slotted tubular arm mounted to swing below said reproducer arm, motor-driven means for actuating said tubular arm, an adjustable block carried by said reproducer arm, means for securing said block in adjusted position, and a connection between said block and said tubular arm comprising a stem carried by said block and extending through the slot in the tubular arm and having a ball-shaped end to traverse the interior of said tubular arm.

11. In a talking-machine, a rotatable record disk, motor-driven means for imparting rotation to said disk, a swinging reproducer arm adapted to be impelled across the face of the record, and a rotative non-supporting part actuated by said motor-driven means and adapted to engage said reproducer and impart swinging movement thereto.

12. In a talking-machine, a rotatable record disk, motor-driven means for imparting rotation to said disk, a swinging reproducer arm carrying a reproducer adapted to be impelled across the face of the record, a second arm mounted to swing below the reproducer arm and operatively engaging the same, and gearing connecting said second arm with the aforesaid motor-driven means.

13. In a talking-machine, the combination with the rotatable motor-driven record-supporting spindle, of a swinging reproducer arm, a second arm



mounted to swing below the reproducer arm, and connected therewith to impart swinging movement thereto, and gearing connecting said second arm with the aforesaid record supporting spindle.

14. In a talking-machine, a swinging reproducer arm mounted so as to be free to vibrate in a vertical direction, a motor-driven rotative arm mounted below said reproducer arm and also free to vibrate in a vertical direction, and a connection between said arms.

15. In a talking-machine, a swinging reproducer arm mounted so as to be free to vibrate in a vertical direction, a motor-driven rotative arm mounted below the reproducer arm and also free to vibrate, and a downwardly extending stem carried by said reproducer arm having a sliding connection with said motor-driven arm.

16. In a talking-machine, a reproducer arm mounted to permit the same to be lifted manually, a motor-driven rotative part mounted below said arm, a swinging arm operatively connected with said reproducer arm and pivoted upon said rotative part, and means actuated by the lifting of the reproducer arm for disengaging said last named arm from said rotative part to permit free swinging movement of the reproducer arm when the same is lifted.

17. In a talking-machine, a rotatable motor-driven record disk, a reproducer located above the record disk, a stylus carried by the reproducer adapted to contact with the face of the record disk, a supporting arm for the reproducer mounted to permit the reproducer to be impelled laterally across the face of the record, a rotative part actuated by the motor-driven means for the record, an arm carried by and rotative with said rotative part and having operative connection with said repro-



ducer arm, and an interengaging connection between said rotative part and the arm carried thereby, whereby the reproducer is held against manual movement in a lateral direction while the stylus is in contact with the record face.

CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*

VS.

TALK-O-PHONE COMPANY.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*

VS.

LEEDS & CATLIN COMPANY.

State and County of New York, ss.:

Albert L. Irish, being duly sworn, says:  
I am President and Treasurer of the Talk-o-Phone Company and have been connected with that Company since the time of its organization. I have read the annexed affidavit of Harry Ensign, Superintendent of the Talk-o-Phone Company, and the statements therein made by said Ensign are to the best of my knowledge, information and belief correct and true. The Talk-o-Phone Company has never been engaged in the manufacture of sound records of any kind, and has manufactured only



talking machines without sound records. The Talk-o-Phone Company has from time to time bought and sold disc sound records and has put upon such disc sound records at times the label of the Talk-o-Phone Company, and the Talk-o-Phone Company has also bought and sold disc sound records having the label of the manufacturer or other label thereon.

I am acquainted with the course of business of the Leeds & Catlin Company, and I know that the Leeds & Catlin Company has never manufactured talking machines, but has manufactured sound records. Furthermore, the Leeds & Catlin Company has not been engaged in the purchase and sale of talking machines, but the Leeds & Catlin Company took from the Talk-o-Phone Company a certain number of talking machines in settlement of an account. Other than talking machines so taken by the Leeds & Catlin Company from the Talk-o-Phone Company, the Leeds & Catlin Company has not purchased talking machines from the Talk-o-Phone Company, and I am informed and believe, and my knowledge and observation confirms the statement that the Leeds & Catlin Company has not purchased and sold other disc talking machines.

The Victor Talking Machine Company and its counsel have been sending to the trade letters such as that dated March 6, 1906, by the Victor Talking Machine Company to the trade, and such as that dated March 7, 1906, by Horace Pettit to Messrs. J. P. Crotty & Company. The sending of such letters to the trade has caused irreparable damage to the Talk-o-Phone Company, causing a loss of tens of thousands of dollars to the Talk-o-Phone Company. I, therefore, instructed counsel for the Talk-o-Phone Company, Louis Hicks, to compel the Victor Talking Machine Company immediately to make its motion for preliminary injunction.

I have read the moving affidavits of Messrs.



Kennedy, Fagan and Middleton upon these two motions for preliminary injunction in the above entitled suits. The statements contained in said affidavits that both in complainants' and defendants' machines and records, the machine is only capable of use in connection with a record of this description, and the record is only capable of use in connection with a machine of this description is incorrect and untrue. The records referred to are capable of use with machines of different description, for instance with the Talk-o-Phones, provided with feed mechanism and with talking machines manufactured according to the patents prior to the patent in suit, which talking machines have been on the market for many years. Such sound records existed before the date of the invention of the patent in suit, as appears from defendants exhibits herein, and have continuously been used with machines of different types. In the affidavit of Mr. Kennedy, it is said that the main distinction of the invention of the patent in suit from the prior art is in the manner of propelling the stylus across the record without the aid or independently of any auxiliary feed screw or other mechanism. Moreover, the talking machines referred to in the said affidavits may be used not only with disc sound records of the description set forth in the said affidavits, but may also be used with disc sound records having vertical instead of lateral undulations, and with disc sound records of different types. In fact, there is no basis whatever for the statements referred to in the said affidavits mentioned. The sound records are capable of use and have been used with machines of various descriptions and existed before the invention of the patent in suit, and the machines are capable of use and have been used with records of various description, such fact being clearly apparent from the Edison early English Patent No. 1644, of 1878, as well as



from the early Bell & Tainter Patents. The record is no essential part of the machine and the machine is no essential part of the record. Each is and has been manufactured independently and each is and has been sold for export to countries foreign to the United States without the other, so that under no possible circumstances has there been within the United States in such instances a combination of the record and the machine or of the machine and the record. The export business of the Talk-o-Phone Company of Talk-o-Phones without records and the export business of the Leeds & Catlin Company of records without machines is large.

In addition to the Talk-o-Phone marked Exhibit A, which is manufactured by the Talk-o-Phone Company, as fully explained in the affidavit of Mr. Ensign, the Talk-o-Phone Company is making another type of talking machine, such as Exhibit B, herewith presented to the Court for inspection, upon which an application for a patent is also pending on behalf of the Talk-o-Phone Company. Talk-o-Phones, such as Exhibits A and B, and similar machines constructed along the lines of Edison's English Patent No. 1644 of 1878 and other patents prior to the date of invention of the patent in suit clearly do not and cannot infringe the patent in suit. Obviously records made and sold for use on such machines are similar in all respects to records made and sold for use before complainants' machines were known or on the market and such records were made and used long prior to the invention of the patent in suit, as the early prior patents to Berliner and others show.

I have for several years past been actually engaged in the manufacture and sale of talking machines and am familiar with the construction and operation thereof and with the market therefor. The American Graphophone Company under



license from complainant, has sold without restriction as to the records to be used thereon in the United States tens of thousands of machines similar to complainants' machines and so has complainant. There are, therefore, in use within the United States tens of thousands of talking machines licensed by complainant for the reproduction of sound from suitable records, which records, as above stated were an article of commerce before the invention of the patent in suit. Judge Hazel states in his opinion that *"the broad claims in suit in my judgment cannot be restricted to a record of even depth, such as described in the specification."* This means that the claims cover machines in combination with records having vertical undulations of uneven depth which as defendants' exhibits of prior patents show are and were, before the date of invention of the patent in suit, made as *disc* and as *cylinder* records. Complainants' affiants, in their moving affidavits, omit this statement of Judge Hazel from the parts quoted by them from his opinion and do not refer to it, but, in spite of it and contrary to it, erroneously and untruly say that machines such as complainants' machines are adapted for use only with records such as those exhibited. There are several machines made and on the market in the United States, provided with swinging arms carrying a stylus free to be vibrated and propelled by the grooves of vertical cylindrical records without any auxiliary mechanism or feed screw device. Mr. Leeds, in his second affidavit, explains this fully. It is, therefore, as reasonable to say that all vertically undulating records are made solely for use on machines coming under the claims of the patent in suit (5 and 35) as to contend that all records of even depth are made for such use.

No Talk-o-Phone ever manufactured, sold or used by the Talk-o-Phone Company was provided



with a recorder or reproducer such as those illustrated in Figures 4, 5, 6 and 7 of the patent in suit.

I agree with Messrs. Ensign, Leeds and Moeller that the apparatus shown in Figure 10 of Patent No. 564586 is impractical. No such device was ever put upon the market, so far as my information goes, and such a device could not be used for the successful reproduction of sound from a record.

The Talk-o-Phone Company has been advised by its counsel, Louis Hicks, that the patent in suit expired before the organization of the Talk-o-Phone Company by reason of the expiration of prior foreign patents to Berliner for the same invention under Section 4887 of the Revised Statutes of the United States and relying upon that fact and law among other things the Talk-o-Phone Company has invested hundreds of thousands of dollars in its plant, factory and business and has not felt obliged to confine its manufacture of talking machines to those with mechanical feed devices such as Exhibits A and B, which the Talk-o-Phone Company has been making and largely advertising for sale since October, 1905. I annex hereto a copy of such an advertisement which appeared in The Music Trade Review for Dec. 2, 1905. Similar advertisements, showing the Talk-o-Phone with the feed device have within the past six months appeared in more than twelve leading magazines and in newspapers throughout the United States, including the Pittsburgh Post, Pittsburgh Dispatch, Chicago Tribune, Chicago Record and Herald, Chicago Inter-Ocean, Cincinnati Enquirer, Philadelphia Record, Minneapolis Tribune, etc. For these advertisements the Talk-o-Phone Company has expended between \$22,000 and \$23,000 and has also expended large sums of money equipping its factory and plant for the manufacture of such



machines and has received large orders for such machines which it is now in a position to fill.

The B. Wurlitzer Co. of Cincinnati and Chicago, Lyon & Healey of Chicago, Minnesota Phonograph Co. of St. Paul, Hayes Music Co. of Toledo, J. C. Crone of Cincinnati, Theo. F. Bentel Co. of Pittsburgh, Clark, Wise & Co. of San Francisco, and others have placed large orders with the Talk-o-Phone Company for machines such as Talk-o-Phones Exhibits A and B. The Theo. F. Bentel Co. writes as follows with reference to the Talk-o-Phone with mechanical feed mechanism:

The Theo. F. Bentel Co. Inc.

Everything in Talking Machines, Records and Supplies. Wholesale Distributors Edison Phonographs, American Talking Machines, Victor Talking Machines, Hawthorne & Sheble Laboratory Products, Edison's Laboratory Products, Kinetoscopes and Films, Etc.

Pittsburgh's Largest Talking Machine House.  
632-634 Liberty Street.

Pittsburgh, Pa., March 5, 1906.

Mr. A. L. Irish,  
President, The Talk-O-Phone Co.,  
Toledo, Ohio.

My Dear Sir:

In compliance with your request for an expression from me as to the practicability of your new mechanical feed device, as applied to disc talking machines, I am pleased to say:

I have examined same carefully and from my nine years' experience in the handling of talking machines, from a manufacturing as well as a jobbing and retail standpoint, regard it as not only a practical but also an attachment that will fill a



## Affidavit of Albert L. Irish.

long felt want and should appeal to all users of disc talking machines, as it must necessarily contribute very largely toward the removal of the only great objection to needle feed disc talking machines, namely, the scratch, together with the further fact that by the elimination of this objection, it also means the increased life of a disc record from 200 to 300 per cent.

From the quantity of your machines that we are using and in view of the above, you can readily see how glad we would be to see the adoption of this device at the earliest possible moment.

Wishing you continued success, I beg to remain,

Yours very truly, —

Theo. F. Bentel.

A. L. IRISH.

Subscribed and sworn to before me }  
this 5th day of April, 1906. }

(NOTARY'S  
SEAL)

T. P. Dalton,  
Notary Public,  
Kings Co.

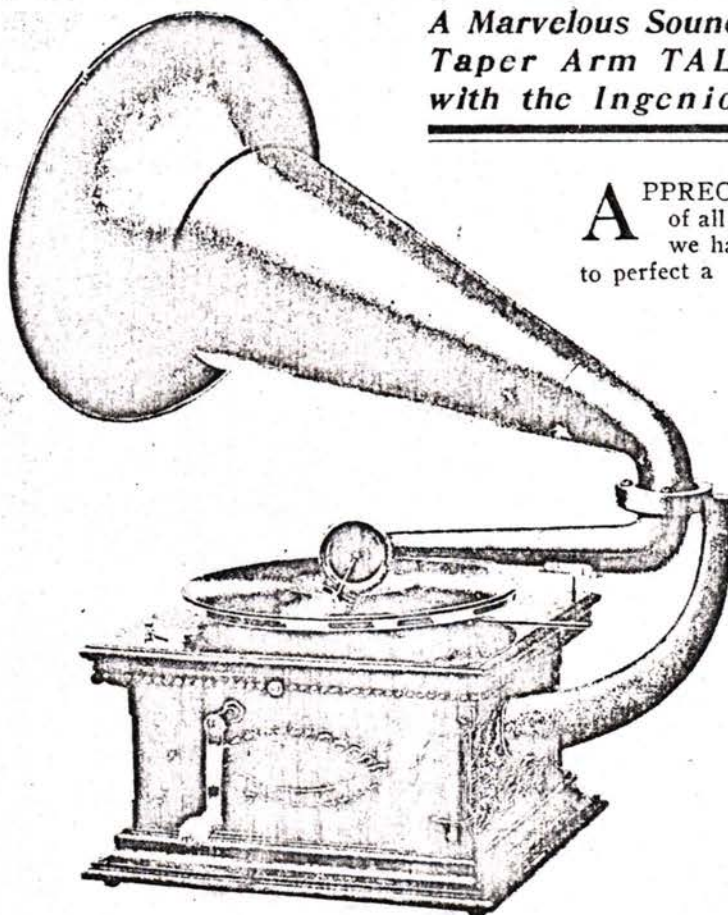
Certificate filed in New York Co.





# A Wonderful Record Saver

*A Marvelous Sound Reproducer is the New  
Taper Arm TALK-O-PHONE Equipped  
with the Ingenious Mechanical Feed*



**A**PPRECIATING that the grating, grinding noises of all disc reproducing machines are obnoxious, we have been experimenting for the past year to perfect a **Talk-o-Phone** that would be entirely free from all foreign sounds and only reproduce the pure musical tones.

We found that the dragging of the needle in order to propel the reproducer across the record was the cause of all the trouble. To obviate this we invented the **Mechanical Feed**, a disc to propel the reproducer across the record, entirely independent of the needle.

The marvelous, clear reproductions resulting from this new device must be heard to be appreciated. This, too, is a great record saver for there is no chance to scratch the needle across the record.

It will be observed that the new **Talk-o-Phone** operated on this principle gets entirely away from the old fundamental principle of reproducing machines, namely, the needle feed. Our patents on this new device are very broad, and this arrangement cannot be used on another machine. We do not operate under any shop rights or license from anyone.

Dealers selling reproducing machines should write immediately for our full descriptive matter and for prices on the new **Talk-o-Phone**. If you are interested in supplying your customers with the only machine which brings out from disc records the pure musical tone only, you must have a sample of this new **Talk-o-phone**.

**THE TALK-O-PHONE COMPANY, 10 Skokie St., Toledo, O.**





CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

TALK-O-PHONE COMPANY.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

VS.

LEEDS & CATLIN COMPANY.

State and County of New York, ss.

Edward F. Leeds, being duly sworn, says:

I have made another affidavit herein. I have read the moving affidavits upon these motions for injunction and the annexed affidavit of A. L. Irish of the Talk-o-Phone Company, whose statements therein are true to the best of my knowledge, information and belief. As stated in my foregoing affidavit, the Leeds & Catlin Company has never manufactured talking machines and has not been engaged in the purchase and sale of talking machines made by others except that the Leeds & Catlin Company in the settlement of an account with the Talk-o-Phone Company took a number of Talk-o-Phones in part payment. The business of the Leeds & Catlin Company is now and always has been the manufacture and sale of disc and cylinder sound records.



I have been in the talking machine business from its infancy. Disc sound records having lateral as well as vertical undulations were known and used before November 7, 1887, as appears from defendants' exhibits of prior foreign and United States patents. Before the date of the invention of the patent in suit disc sound records having lateral undulations were, therefore, known and used. The early patents for such records have long since expired.

*The contention of the moving affidavit that disc sound records having lateral undulations can be used only on machines made according to Claim 5 and 35 of the patent in suit is untrue.* Such sound records were used on other machines before any machine was made according to the alleged invention of the patent in suit set forth in claims 5 and 35. Berliner himself so states in his early foreign and United States patents and publications in evidence. Moreover, English patent No. 1644 of 1878 to Edison and the early Bell and Tainter patents show machines which can be used to reproduce sound records having lateral undulations. The Talk-o-Phones, Exhibits A and B, are such machines, which are constructed according to the feed mechanism of the early prior patents and not according to alleged invention of claims 5 and 35 of the patent in suit.

*The contention of the moving affidavits that machines made according to Claims 5 and 35 can be used only with disc sound records having lateral undulations is likewise untrue.* English Patent to Edison, No. 1644 of 1878, shows the contrary in figures 1 and 2. Judge Hazel, in his opinion, said that "the broad claims in suit in my judgment cannot be restricted to a record of even depth, such as described in the specification." Records of even depth are those having only lateral undulations. Hence, according to Judge Hazel and according to



the fact machines made according to Suess' invention, which is embodied in claims 5 and 35 of the patent in suit can be used with sound records having vertical undulations. I have myself operated such a machine for the reproduction of cylindrical sound records having vertical undulations. The machine had a swinging arm carrying a stylus at the free end which was vibrated and propelled across the surface of the record by the groove of the record, which, as above stated, was a record with vertical undulations on a cylinder. I saw half a dozen such machines in operation at 81 Franklin Street, New York City, on January 19, 1906, with my counsel, Mr. Hicks. The machines were exhibited to me by a Mr. Nye, who wished to arrange with my company for the manufacture of cylindrical phonograph records for use therewith, the records to have vertical undulations similar to the ones then and there used with perfect success. I am informed and believe that the Jacob Music Company of 39 Union Square, New York, has a similar machine for use with similar records. It would, therefore, be as reasonable to say that all cylindrical or disc records having vertical undulations are designed for use only as the Suess machines embodied in claims 5 and 35 of the patent in suit. The fact is that sound records of every description antedate the invention of the patent in suit and were known and used on various machines prior to the invention of the patent in suit.

The Leeds & Catlin Company has purchased and used machines made by the complainant, Victor Company, and uses the same to-day. The Leeds & Catlin Company manufactures and sells for export and exports hundreds of thousands of disc sound records having lateral undulations and does not sell in connection therewith machines of any kind. The records of the Leeds & Catlin Company are



sold on the market without reference to the style or character of machine with which they may afterwards be used and said records are adapted as above shown to be used with machines of different styles and are exported for use in foreign countries.

On November 2, 1905, at the Imperial Hotel in New York City, I saw the Talk-o-Phone such as Exhibit A, with a mechanical feed device in successful and perfect operation with records of different makes and I know that such machines have been extensively advertised for sale by the Talk-o-Phone Company.

In the United States, Berliner Patents in evidence, No. 372786 of November 8, 1887, and No. 382790 of May 15, 1888, have expired with the expiration of their seventeen year terms; and No. 564586 of July 28, 1896, has expired with the expiration of the terms of the prior English Patent No. 15232 of November 8, 1887, French Patent No. 186827 of November 8, 1887, German Patent No. 45948 of November 8, 1887. Furthermore the following Berliner foreign patents all prior to the patent in suit, have expired, viz.: English Patent 7204 of May 15, 1888; French Patents No. 190602 of May 15, 1888, and No. 207090 of July 19, 1890; German Patents of addition No. 47099 of May 16, 1888, and No. 53622 of November 20, 1889. All these expired Berliner patents describe and claim sound records of even depth with lateral undulations and machines for making the same and reproducing sound therefrom. The claim made in the moving affidavits that the patent in suit can cover such sound record because of their possible use with the machines thereof is to my mind untenable. But as fully shown the patent in suit has also expired and the invention of claims 5 and 35 thereof belonged to Sness by his Canadian patent obtained on Berliner application, unless limited to the spe-



296 Affidavit of Edward F. Leeds.

cial form of reproducer shown in figures 6 and 7, which has never been made, used or sold by the Talk-o-Phone Company or the Leeds & Catlin Company.

Relying upon this state of the art shown by the foregoing expired Berliner patents and by the expiration of all fundamental patents in the art, the Leeds & Catlin Company has invested and secured to be invested nearly a million of dollars in cash in its factory and plant for the manufacture of sound records of all kinds.

E. F. LEEDS.

Subscribed and sworn to before me }  
this 5th day of April, 1906. }

T. P. Dalton,  
[NOTARY'S SEAL] Notary Public,  
Kings County.  
Certificate filed in New York County.



UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.VICTOR TALKING MACHINE COM-  
PANY

vs.

THE TALK-O-PHONE COMPANY.

In Equity.

VICTOR TALKING MACHINE COM-  
PANY

vs.

LEEDS &amp; CATLIN COMPANY,

In Equity.

State of New York, }  
County of New York, } ss.:Harry T. Goss, being duly sworn, deposes and  
says as follows:

I am thirty-three years of age, reside at Rutherford, New Jersey, and am by occupation a mechanical engineer and expert, having an office at No. 76 William Street, Borough of Manhattan, City of New York. I graduated from the Worcester Polytechnic Institute of Worcester, Mass., in 1894, and immediately thereafter entered upon the business of mechanical engineering and designing, in which business I have been constantly engaged down to the present time, and in which I have had occasion to give much attention to letters patent for inventions. I have had considerable experience in the art of recording and reproducing speech and other sounds, and in addition have been called upon to testify as an expert in cases growing out of infringement of letters patent.



My attention has been called to the recent suit of Victor Talking Machine Company vs. American Graphophone Company on Berliner Patent No. 524543, and, in that connection, to the Bell & Tainter Patent No. 341214, and Edison British Patent No. 1644 of 1878. What I have to say concerning these two patents will appear in this affidavit for the first time so far as I am aware, the same not being even suggested in the suit here referred to.

The leading difference, commented upon in the suit against the American Graphophone Company, between the feed of the Bell & Tainter graphophone and that of the Berliner Patent grows out of the fact that in the former, although the sound-box is guided and propelled by the record-groove, this guiding and propelling does not extend over the entire surface of the record, that end of the reproducer arm distant from the sound-box being also moved by a mechanical feed. In the Berliner Patent, the sound-box is guided and propelled throughout its entire traverse by the record-groove. Apparently, therefore, the Court regarded the Berliner Patent as covering a structure in which the entire movement of the sound-box was due to the record-groove, but this I am satisfied from my examination of the structure of the Bell & Tainter Patent was clearly understood by Messrs. Bell & Tainter, and in this I am confirmed by the deposition of one of the co-inventors, Chichester A. Bell, given in the suit brought in this Court, entitled "American Graphophone Company vs. National Gramophone Company," the deposition having been given on October 22d, 1900 (copy annexed, marked "Schedule A"), and by a paper deposited by Messrs. Alexander Graham Bell, Sumner Tainter and Chichester A. Bell in the Smithsonian Institute in October 1881, as appears by a copy thereof forming part of the record in the suit of American Grapho-



phone Company vs. American Record Company, which case, brought in this Court, is now on appeal to the Circuit Court of Appeals for this Circuit.

In the paper so deposited and which has become known as the "Volta Laboratory Description," the inventors of the graphophone set forth the underlying features of that invention, showing such invention to include recording by means of either "a wavy or zigzag line of uniform depth" or "a straight groove of varying depth," and in this connection the following statement is made:

"For some months previous to the present date (September, 1881) our invention has been practically perfected, but we still withhold publication in the hope that our continued efforts may result in a more simple form of apparatus adapted for popular use."

To my mind this can mean nothing more than that the inventors were in search of a mechanism which was not only "simple" in the respect of having few parts, but also compact. From the form which the earliest graphophone took, as well as the several forms which have appeared from time to time during the exploitation of that machine, it is entirely apparent that the controlling thought was to get the machine within as small compass as possible. Had the sound-box of the graphophone been fed the entire length of the record by means of the record-groove, this would have necessitated a long reproducer-arm pivoted at its distant end and the space consumed by the entire machine would practically have been doubled. The shorter arm provided with a mechanical feed for the distant end thereof was, and is, in my belief, the mechanical equivalent of Berliner's longer arm pivoted at its distant end, the former rather than the latter being adopted solely for compactness and in the effort



to produce the "simple form of apparatus adapted for popular use."

This conclusion, although to my mind an obvious one, is not merely matter of opinion or surmise. On the contrary, I find in the deposition of Dr. Bell ("Schedule A," annexed) evidence bearing directly upon the point (see Questions 8 *et seq*). He shows that during the work done by Mr. Tainter and himself "the groove cut in the wax was made to carry the reproducing style across the record," and that

"I found that while that arrangement worked very well with a long lever it was not quite satisfactory when the lever was made as short as I wished to make it to keep the size of the instrument within reasonable limits, and therefore some feed mechanism was added to the instrument so as to make the reproducer roughly (?) follow the motion of the record."

It is entirely clear to me that in view of the disclosure of the Edison British patent above referred to both of these methods of mounting the sound-box of a talking machine were open to Bell & Tainter at the date of the application for Patent No. 341214. Said Edison patent, in several of its figures and in the description concerning the same, discloses the use of a sound-box mounted upon a pivoted arm, but connected with this arm was another having a connection with a guide-groove. Examples of this construction are best shown in Figures 1, 2, 6 to 8 and 11. The sound-box (called by Edison the "phonet") included a stylus, and the record (called by Edison the "phonogram") is shown and described as being formed in tablets of various shape, including a "disc" and a "cylinder." The record-groove (see the foot of page 2 of speci-



cation) was either straight or "zig-zag." In this patent Edison describes and illustrates not only the feature of guiding the sound-box by means of a groove independent of the record-groove, but also the feature of guiding the sound-box by means of the sound-record groove itself. Probably the best illustration of this latter feature will be found in Figure 34, and in order to make this clear to the Court I have caused to be prepared a model which is presented herewith, marked "Exhibit Model Edison British Patent." Here the record-groove is formed in a disc the undulations or "indentations," as Edison called them, being spirally formed on both sides of such disc, and there being two sound-boxes, one for each side, and suitably mounted so that after one has traversed the full length of the record-groove the other is brought automatically into engagement with the record-groove on the opposite side. Referring to this construction, the specification (p. 8) says:

"Fig. 34 is a perspective view showing a double phonet, there being a spiral line of indentations on each side of the revolving disc *d*, one phonet coming into action as the other finishes; in this case the spirals should be in opposite directions, so that the disc continuing to revolve in the same direction moves one phonet from the center outwards, and then the other phonet is connected and moved back toward the center; this may be used as a toy."

In this construction, each of the sound-boxes is mounted upon a long arm, and these arms are pivoted at their distant ends to a block upon a rock-shaft. There is no mechanical feed whatever; in fact, absolutely nothing for guiding and propelling the sound-box save the record-groove itself.



The structure disclosed is precisely that of the Berliner patent, save that, instead of having a single sound-box and long pivoted arm, there are two such sound-boxes and arms and means for automatically bringing these alternately into engagement with the record-grooves on both faces of the disc.

The "Exhibit Model" herewith produced is a true and faithful reproduction of the structure illustrated in Figure 34 of the Edison patent. For compactness the rock-shaft on which the sound-box-carrying arms are mounted is made somewhat shorter, and in addition, for convenience of operation, a small crank has been put upon the end of the shaft carrying the record disc. These are, of course, wholly immaterial on the question of disclosing the actual construction of the Edison device, as well as on the question of identity of the structure of his patent and that upon which the Claims 5 and 35 of the Berliner patent are based.

Claims 5 and 35 of Berliner Patent No. 534543 read as directly and certainly upon the Edison construction as they do upon that actually disclosed in the Berliner specification and drawing. Claim 35 covers the combination of "a traveling tablet having a sound-record" and "a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same." The most casual glance at the Edison device will at once indicate the truth of the statement above made, these two instrumentalities being present in said device just as they are in the device of Berliner. The tablet has a "sound-record formed thereon" and the reproducing stylus is "shaped for engagement with said record and free to be vibrated and propelled by the same." There is, in fact, nothing else designed to vibrate or propel the reproducing stylus, or capable of vibrating or propelling that stylus, than the "sound-record"



formed in the "travelling tablet." This being true, it necessarily follows that the method specified in Berliner's Claim 5 is practised in the operation of the Edison device, there being, in fact, no operation of that device save that which is specified in said claim and in which the sound-record vibrates the stylus and propels "the same along the record by and in accordance with the said record."

In so far as the Edison device is designed to employ a record tablet having a record-groove on both sides thereof, this constitutes a departure—a most immaterial one—from the mechanism disclosed by the Berliner Patent, wherein the record tablet has a record on one side only. For a number of years past, however, the use of "double-cut" records has been very common, the same tablet bearing a record of one selection on one side and another record of another selection on the other. In reproducing these records in the modern machines, the sound-box is made to engage the record on one side of the tablet, and then when that reproduction has been finished the tablet is turned and the record on the other side brought into engagement with the sound-box. Edison's apparatus went farther than this, making it possible to double the length of the reproduction by providing means whereby, as the reproduction from one record was finished, another sound-box was automatically brought into engagement with another record, such records being however, as is common to-day, on opposite sides of the same tablet.

HARRY T. GOSS.

Subscribed and sworn to before me, }  
this 5th day of April, 1906. }

I. McIntosh,  
Notary Public,  
N. Y. & Westchester Cos.

[SEAL.]



**Schedule A.**

**IN THE CIRCUIT COURT OF THE UNITED  
STATES,**

**FOR THE SOUTHERN DISTRICT OF NEW YORK.**

**AMERICAN GRAPHOPHONE COM-  
PANY**

**vs.**

**NATIONAL GRAMOPHONE COM-  
PANY and Frank Seaman.**

**In Equity  
No.**

Testimony in reply for complainant taken pursuant to annexed notice before Reeve Lewis, a notary public in and for the District of Columbia, at the office of Philip Mauro, Esq., No. 620 F. Street, Washington, D. C., under and in accordance with Sections 863, 864 and 865 of the Revised Statutes of the United States in such case made and provided, beginning at 10:30 A. M., October 22nd, 1900.

Present—PHILIP MAURO, Esq., for Complainant.  
GUSTAF BLISSING, Esq., for Defendant.

And thereupon Dr. Chichester A. Bell a witness produced on behalf of Complainant, being first duly sworn, deposes and says in answer to interrogatories propounded by Mr. Mauro, as follows:

Q1. Please state your name, age, residence and occupation?

A. Chichester A. Bell; of lawful age; residence, Richmond, Surrey, England; occupation physicist.

Q. Are you the C. A. Bell named as one of the



grantees of U. S. Letters Patent No. 341,214 granted May 4th, 1886, for Recording and Reproducing speech and other sounds?

A. I am.

Q3. Please state where and when the inventions described and claimed in that patent were made?

A. They were made in the Volta Laboratory in Washington between 1881 and 1885.

Q4. Do you mean that the work extended over the period mentioned in your last answer, or merely that the inventions were made between those dates?

A. The work extended pretty well over the whole period.

Q5. Please state who composed the Volta Laboratory Association and for what purpose it was organized?

A. Alexander Graham Bell, Sumner Tainter and myself; and it was organized for the purpose of making inventions. After its organization we decided to confine our work mainly to improvements in recording and reproducing sound.

Q6. The specification of your Patent No. 341,214, after describing the reproducer mounted on a universal joint, states that such reproducer so mounted is specially adapted for use in connection with a record in the form of a groove with sloping walls, and the form of record particularly described in said patent is one of varying depth; please state whether the Volta Laboratory Associates prior to the application for said patent were familiar in practice with any other form of record and if so, with what form?

A. Yes, we made a great many experiments with records in the form of zig-zag lines, cut out in waxy substances, and with similar records etched in metal; and we found that our reproducer worked as well with those as with the records of varying depth.

Q7. State briefly the operation of making records



of zig-zag form by etching in metal as practiced by the Volta Laboratory associates?

A. Those experiments were made mainly by Mr. Tainter and by Mr. A. G. Bell. The vibrating style was arranged so as to cut a zig-zag line on a waxy surface or to cut a zig-zag line in a thin layer of waxy substance spread on metal, the surface of the metal being subsequently etched by well known processes. Sometimes we used galvanizing and sometimes etching fluids.

Q8. Were you or not, prior to the application for Patent No. 341,214 aware of the capacity of the record groove in various form of records made by you to feed the reproducing stylus laterally across the record, and if yea, state how such familiarity was acquired?

A. Yes, I was perfectly aware of that, as the result of a great number of experiments in which the groove cut in wax was made to carry the reproducing stylus across the record.

Q9. If the result of that work gave you a preference for a particular mechanical form of apparatus, please state the reasons that determined such preference?

A. I found that while that arrangement worked very well with a long lever it was not quite satisfactory when the lever was made as short as I wished to make it to keep the size of the instrument within reasonable limits, and therefore some feed mechanism was added to the instrument so as to make the reproducer roughly follow the motion of the record.

Q10. As a matter of fact, would a short lever follow the record to some extent?

A. Yes, it would; but you couldn't rely on it always to remain in the groove.

—Direct examination closed.



Cross-examination by Mr. Bissing:

XQ11. Will you please tell me what direct share you had in the preparation of the application on which the patent in suit was granted. I mean to ascertain whether you personally consulted the gentleman who drew the application, whether you left that to your co-inventor Mr. Tainter, or whether perhaps you sent a written draft of instructions to your solicitor instead of calling personally upon him.

A. I believe I had a great many personal communications with the gentleman who drew up the specification; I don't remember drawing up any written statement; I believe the communications were all oral.

XQ12. About what time, so near as you can now remember, did you reach results with your records cut in wax, I mean your vertically undulating cut wax records, which convinced you that the cut wax record was a success and, if perhaps not ready just at that time to be put upon the market was yet the type of record which you proposed to push?

A. Very early in 1881, in fact it was before the Volta Laboratory Association was actually formed.

XQ13. Were your experiments with the laterally undulating records made at an earlier or a later date?

A. I don't like to speak positively on that point for the simple reason that I myself have not made many experiments of that kind, but my impression is that experiments of that kind were made very shortly afterward by Mr. Tainter.

XQ14. What was the object of making experiments on laterally undulating records, at a time when the vertically undulating cut wax record had been decided upon by you to have been a success and to be the record which you proposed to push?

A. Of course we had to make experiments to find



out the best form and to make perfectly certain on that point, and that could only be done by experiments; in fact we tried everything we could think of whether it seemed promising or not. Our specification does not include anything like the number of experiments we made.

XQ15. Is it not a fact that you obtained very much better results with your vertically undulating cut wax record than with any laterally undulating etched record you ever experimented with?

A. My recollection is that it was very hard to distinguish one from the other as far as results went, but the vertically undulating record was found in every way, to be the most convenient, and that's why we adhered to it.

XQ16. Do you happen to remember the exact mode of preparing the particular laterally undulating etched record which gave you the best results?

A. I don't think I would like to speak positively on that point. Of course you will understand that that was not my department. This section of the work was done chiefly by Mr. Tainter.

XQ17. Mr. Tainter is alive to-day is he not?

A. I have not seen him for many years.

Counsel for Complainant states that according to his latest information Mr. Tainter is alive, and that it is the intention of Counsel for Complainant to examine Mr. Tainter as a witness in this case.

Cross-examination closed.

RDQ18. How did the zig-zag cut record compare as to results with the cut record of varying depth?

A. Well, when the undulations were not too pronounced they gave very much the same results.

CHICHESTER A. BELL.

[SEAL]

Reeve Lewis,  
Notary Public,  
District of Columbia.



**Affidavit of Robert L. Thomae on Be-  
half of Complainants' Sur Motion  
for Preliminary Injunction.**

IN THE UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

In Equity, No. 8859.

Suit on Berliner Gramophone Patent, No. 534543.

VICTOR TALKING MACHINE COM-  
PANY and United States Gram-  
ophone Company,  
Complainants.

VS.

THE TALK-O-PHONE COMPANY,  
Defendant.

Commonwealth of Pennsylvania, }  
City and County of Philadelphia, } ss.:

Robert L. Thomae, being duly sworn according  
to law, deposes and says as follows:

I am forty-one years of age, and reside at Fan-  
wood, New Jersey. I have been intimately con-  
nected with the talking machine business for many  
years, and especially during the past five years.  
I am very thoroughly conversant with the trade  
in connection with the talking machine business,  
and have quite an intimate knowledge of the differ-  
ent companies which are engaged therein.

I am, and have been, connected with the Victor  
Talking Machine Company, one of the complain-  
ants herein, for several years.



I have recently investigated quite fully into the financial standing and character of the business done by the Talk-o-Phone Company, the defendant herein; while it advertises, especially recently, that it has a large capital and is making large sums of money, I have been unable to find in my investigations that it is strong financially, and in fact, my information is to the contrary, and I am informed and believe that its credit is poor, and it is slow in paying its bills.

The business of the Company has been conducted during the past few years under several names. The present The Talk-o-Phone Company was incorporated under the laws of the State of Ohio in January, 1904, and succeeded to the business of the Ohio Talking Machine Company. The Ohio Talking Machine Company had in turn about December, 1901, succeeded to the business of the Toledo Talking Machine Company. The Talk-o-Phone Company in a letter dated April 25, 1904, states that it is a reorganization of the Ohio Talking Machine Company, which letter is ready in Court to be produced, a copy of which is hereto attached marked "Thomae Exhibit No. 1." These Companies were succeeded, one by the other, from time to time, as I am informed and believe, for financial reasons, and one of the best evidences of the financial condition of the present Company, the Talk-o-Phone Company, the defendant herein, is the sensational character of the advertising which it has been doing recently in the daily newspapers and magazines since the decision of Judge Hazel sustaining the Berliner Patent, No. 534543, in the suit of these complainants against the American Graphophone Company, September 28, 1905, which has been since sustained by the Honorable Court of Appeals.

These advertisements are most alluring in character and contain statements regarding earnings



and proposed earnings, which from my knowledge of the talking machine business, would be practically impossible. The Company manufactures and sells only the disc type of talking machine, such as is in evidence in this case, as an infringement of the patent in suit, and no other type of machine. It does not manufacture or sell any other type of record than the disc record, such as in evidence in this case.

I am satisfied that the statements contained in many of these advertisements are most misleading, and cannot be maintained.

The first advertisement, to which I would refer, is one taken from the Sunday Tribune of Chicago, issue of February 18, 1906, a copy of which is hereto attached marked "Thomae Exhibit No. 2."

This advertisement begins with the announcement of "50% Earnings" and then contains a statement that the concern is a legitimate manufacturer of commercial standing, that will pay tremendous profits.

The statement is also therein contained:

"An opportunity to make a small investment pay you an income for life and then pay to your children and grand-children."

The statement is also therein made:

"During these two years (since January 1904) the business (of this Company) has increased by leaps and bounds until now this concern manufactures more machines than either of its two largest competitors, the Victor or the Columbia."

This statement, evidently made for the purpose of inducing subscriptions to the stock of the defendant Company, is absolutely untrue.

The attention of the Court is directed to this advertisement, "Thomae Exhibit No. 2."



This advertisement contains also the following statement:

"Our present output is sold to about 40 of the largest and strongest concerns in this country who handle talking machines. These connections, as you can see from the following list, extends from the Atlantic to the Pacific."

Then follows a list of names of concerns referred to, with addresses.

Many of these concerns were communicated with on behalf of the Victor Company to ascertain the truthfulness of these statements, and the replies, in a great many instances, denied that they were handling the Talk-o-Phone Company's product, or ever did handle, or intended to handle it. Other instances showed that they had only handled two or three machines.

The claims made in this advertisement for the value of the stock appear to be extravagant and unfounded, for instance, one share of stock at par value of \$10.00 is offered for sale at \$9.50, or upon the payment of \$1.00 cash and \$1.00 each month for nine months, while the advertisement goes on to state that the estimated value of this one share of stock within one year is \$25.00, and further on, its estimated value within two years, is \$50.00, thereby holding out to prospective purchasers an investment which would increase in value 250% in one year, or 500% in two years, while a dividend within two years, of \$3.00 would be paid on the \$10.00/shares.

As further illustrating the sensational character of this attempt to secure the public's money by the defendant Company, we would quote from the advertisement, the following:

"The average profit is \$5.00 per machine. Turning out 750 machines a day would make a profit of



\$3,750.00 per day, or \$1,170,000.00 profit per year. These are no "Col. Sellers'" figures; but straight facts. No gold mine, no oil well, no plantation scheme could hope to equal such returns; and no bond, no railroad stock could be more secure or solid investment. This stock that we now offer at \$10.00 per share should be worth on the basis of earnings \$100.00 per share in two years' time, for remember we have no long-winded proposition such as building factories, perfecting machines, or anything of that sort. For Our Present Factory Equipment Is Amply Sufficient to turn out all the machines necessary to make this \$1,000,000.00 yearly profit."

I also attach hereto other similar advertisements in the daily papers, viz.:

The Philadelphia Record, issue of March 25, 1906, marked "Thomae Exhibit No. 3";

The Philadelphia North American, issue of March 30, 1906, marked "Thomae Exhibit No. 4";

The Philadelphia Press, issue of March 29, 1906, marked "Thomae Exhibit No. 5."

The Philadelphia Daily Evening Telegraph, issue of April 4, 1906, marked "Thomae Exhibit No. 6";

The Philadelphia Press, issue of April 5, 1906, marked "Thomae Exhibit No. 7."

I would also call attention to the fact that in several of these advertisements, notably the Sunday Tribune of Chicago, of February 18, 1906, "Thomae Exhibit No. 2", which was since the decision of Judge Hazel, sustaining the patent in suit, in the Circuit Court, that the defendant has illustrated in a cut in the advertisement, and described in the body of the advertisement a talking machine, manifestly an infringement of Patent No. 534543, but which is evidently designed for the purpose of trying to evade the patent by adding to the machine what is called a "mechanical feed." The advertisement states, in referring to this machine illustrated therein, that:



"The Talk-o-Phone also has the Mechanical Feed, a device which moves the reproducer across the record independent of the scratching of the needle. This wonderful new device renders the new taper arm Talk-o-Phone a marvelous sound reproducer and a great record saver."

It also states in this connection:

"It will be observed that the new Talk-o-Phone operated on this principle gets entirely away from the old fundamental principle of reproducing machines, namely, the needle feed."

While these machines with the so-called "mechanical feed" attached are illustrated and advertised in several of these advertisements, and also in magazines, and have been for some time since the decision of Judge Hazel sustaining the Patent in suit No. 534543, yet the complainant Company has been unable to secure one of these so-called "mechanical feed" machines, and as far as I have been able to ascertain, they are not upon the market.

These so-called "mechanical feed" machines are gotten up evidently as an attempt at an evasion of the patent in suit, by adding an alleged "mechanical feed," which, from the description and from the illustration in the cut, manifestly could have no function to perform, and it would be a mere surplusage and useless addition to the complainants' patented machine.

These statements, however, above quoted, regarding this alleged "mechanical feed" machine are obviously for the purpose of inducing the unsuspecting public to buy stock in the Company.

The talking machines which the Talk-o-Phone Company have been manufacturing and selling heretofore, and are still manufacturing and selling, are similar to the complainants' machine in evidence, without any mechanical feed attachment.

The getting up and advertising of the alleged



mechanical feed device since the date of the decision of the Court below sustaining the validity of the Berliner Patent in suit, is strong evidence that the defendant regards the old machine, which they have been selling, as an infringement, and are endeavoring to make some addition to the old machine which they call a "mechanical feed" for the purpose, manifestly, of evading the patent, and for leading the public to believe that they have a machine which will not infringe the Berliner Patent in suit.

As far as I have been able to ascertain, all these advertisements for sale of stock of the defendant Company have been put out since the decision of Judge Hazel in the Court below, sustaining the patent in suit, though no mention is made in these advertisements of the Berliner Patent, or of the existence of this suit, yet the unsuspecting public is induced to subscribe to the stock of the Company without full knowledge of the facts and by the suppression of this important information.

The subscriptions of only small and uninvestigating subscribers is solicited; as evidenced by the following statement in the advertisement of the Philadelphia Press of April 5, 1906 (Thomae Exhibit No. 7):

"It has not permitted block subscriptions by eager capitalists because it will not allow the control of the business to pass from the present stockholders, and because it realizes that if all the people subscribe to stock in small allotments every stockholder will feel a personal interest in the success of the business."

I believe and aver that such claims as are advertised by the Talk-o-Phone Company relative to the prospective value of the stock and earning qualities are unfounded and cannot be substanti-



ated, and that, as hereinbefore pointed out, the character of the advertisements are most misleading and strongly evidence the fact that the concern is weak financially, and is making a desperate effort, by misrepresentations and misleading statements, to secure additional capital from the unsuspecting public in strengthening its present crippled condition.

What connection the Talk-o-Phone Company has with the Leeds & Catlin Company, the defendant in the other suit brought by these complainants for infringement in this Berliner Patent, and now before this Court, I do not know.

I do know, however, that Edward F. Leeds, of the Leeds & Catlin Company, was at one time President of the Talk-o-Phone Company and a large stockholder in that Company, while he was at the same time President of the Leeds & Catlin Company, and that the Talk-o-Phone Company at one time sold exclusively the flat disc records manufactured by the Leeds & Catlin Company, for use upon the Talk-o-Phone machine. I attach hereto, marked "Thomae Exhibit No. 8", a record catalog of the Talk-o-Phone Company, the defendant herein, advertising "Leeds Disc Records."

I would further aver that if this infringement by the Talk-o-Phone Company should be allowed to be continued until final hearing, the defendant would be financially unable, in my opinion, to reimburse the complainants for the damages and profits to which the complainants would be en-



titled should a decree be entered in its favor at final hearing.

And further, deponent sayeth not.

(Sgd.) ROBERT L. THOMAE.

Sworn to and subscribed before me }  
this 5th day of April, A. D. 1906. }

Alexander Park,  
[SEAL] Notary Public,  
Commission expires Feb. 6, 1909,  
604 Stephen Girard Bldg.,  
Philadelphia.

**Thomae Exhibit No. 1.**

Signed, Alexander Park,  
[SEAL] Notary Public,  
Commission expires Feb. 6, 1909,  
604 Stephen Girard Bldg.,  
Philadelphia.

**TALK-O-PHONE COMPANY.**

(Letter Head.)

- Toledo, Ohio, April 25, 1904.

The Talking Machine Co.,  
Chicago, Ill.

Gentlemen:—

You are no doubt aware of the misfortune that has just befallen one of the leading disc talking machine companies in the damage by fire to their plant entailing a loss estimated at \$500,000. We fully appreciate the disadvantage this may be to the dealer and jobber throughout the country. It is unfortunate in the extreme, and our motive for writing you is to fully inform the trade in general that our new factories in this city have a capacity of some 500 machines per day, placing us in posi-



tion to take care of your wants promptly in the disc talking machine line.

The Talk-o-Phone Company is a reorganization of the Ohio Talking Machine Co., and we have improved upon our machines and records in the last two months to such an extent that we can recommend our entire line as A-1 values. We have no apologies whatever to offer for the Talk-o-Phone or our new process Leeds Records even in the minutest detail, and it will be our pleasure to take up the matter with you at any time. We can fill all orders promptly and give you the very best of attention and satisfaction. To any of the trade who have not seen our new line of machines and records we will be glad to make a shipment of a limited number, if necessary to verify the above statements regarding the up-to-date machines and records now marketed by this Company. If you are interested, write us for trade discounts, etc.

Thanking you for any past favors, and hoping to receive your prompt attention, we are,

Very truly yours,

The Talk-O-Phone Company,

(Sgd.) Oscar E. Barringer,

Ass't Manager Sales.



# 50% EARNINGS

**An Investment in a Legitimate Manufacturing Concern of A1 Commercial Standing That Will Pay Tremendous Profits.**

**Not a Speculation in Any Sense, but an Investment Endorsed by Leading Merchants Who Are Now Purchasing Heavily from This Concern.**

**An Opportunity to Make a Small Investment Pay You an Income for Life, and Then Pay to Your Children and Grandchildren.**

**Don't Doubt the Truth of Statements or Sneer at Proof, for the Skeptic Never Becomes Wealthy or Famous for Shrewd Judgment.**

**THE TALK-O-PHONE COMPANY** of TOLEDO, OHIO, heretofore a \$500,000.00 corporation, have found it advisable owing to tremendous increase in the volume of their business, to increase their Capital Stock to \$1,000,000.00, and now offer for sale to the public a limited amount of this Capital Stock. This Company was organized under Ohio laws in January of 1924 to take over certain valuable patents and manufacture talking machines of the disc pattern. During these two years the business has increased by leaps and bounds until now this concern manufactures MORE MACHINES than either of its two largest competitors, the Victor or the Columbia.

In order to do this, it has been necessary to build a very large plant [see photos which only show a portion] and to invest large sums in machinery, equipment, patterns, patents and materials, so that these items alone of the plant as it stands today show a conservative valuation of \$619,300.14. Hence our shortage of working capital.

## PROFITS.

During the past year this concern earned 8 per cent on its stock over and above all interest charges and in addition to this showed a surplus.

Owing to this showing the directors have decided to pay a 5 per cent semi-annual dividend in July, 1926. So much for profits on the present basis. Now the purpose of the sale of this additional stock is to increase the working capital so that this concern may do up its other two large competitors do—that is, sell to the "large quantity" houses who require four to six months' terms, and in this way work the factory to its limit of 750 machines a day. This amount of output can readily be sold at a good profit.

The average profit is \$5.00 per machine. Turning out 750 machines a day would make a profit of \$3,750.00 per day, or \$1,125,000.00 profit per year. These are no "Col. Sellers" figures, but straight facts. No gold mine, no oil well, no plantation scheme could hope to equal such returns; and no bond, no railroad stock could be a more secure or solid investment. This stock that we now offer at \$10.00 per share should be worth on this basis of earnings \$100.00 per share in two years' time, for remember we have no long-winded proposition such as building factories, perfecting machines, or anything of that sort. **FOR OUR PRESENT FACTORY EQUIPMENT IS AMPLY SUFFICIENT** to turn out all the machines necessary to make this \$1,000,000.00 yearly profit.

The situation on patents is such that further competition need not be looked for, and on this particular point this company is extremely fortunate for in addition to their valuable patents before possessed by them, they have very recently been allowed a patent on a mechanical feed device which was the one thing necessary to make perfect the disc reproducing machine by absolutely doing away with the old "grating" sound which has heretofore marred all sounds reproduced by disc machines. There being no fear of further competition due to this patent situation, the present profit can be maintained or if anything even improved.

## Why You Are Offered This Stock

The Talk-O-Phone with its assets of over half a million of dollars can borrow enough money to carry on its enlarged business, but the directors and stockholders will not permit such a course, and wisely and rightly so, for the prospects are so brilliant the holders of such a loan might take it into their heads to try a game of "pinch" and "freeze-out." The temptation would be too great for them to see profits of 80 per cent to 100 per cent when they received only 5 per cent on their loan. There are big capitalists who would gladly put up this money, but they would want to own and control the company, and then the present owners and

you, if you were one, would not have the profits the business will surely earn.

In addition to this, we feel that every purchaser of this stock in this enterprise will surely become a user and strong advocate of the Talk-O-Phone, and thus materially increase our sphere of influence.

## For Convenience of Those Desiring Stock on Easy Terms.

Even if you have not the ready money to invest now, arrangements have been made whereby a limited amount of this stock has been set aside to be sold on the installment plan—\$1.00 per share to be paid with subscription and \$1.00 per share per month thereafter for nine months.

You probably often spend more money in a single day on amusements or unnecessary things than would be required to buy, in this way, a good block of this dividend-paying, rapidly enhancing stock.

## Future Price of This Stock.

The directors have decided that after the first \$100,000 of this additional stock has been subscribed for, then the price will be advanced to \$12.50 per share. The earning capacity really shows a much higher worth than this. It is therefore imperative you send in your subscription at once.

## Dividends.

The directors have decided that any dividend to be paid in July shall be paid on all stock purchased before March 1st, as if it had been sold as of date of January 1st—in other words, you will receive six months' dividend when your investment is only four months old.

## A SAFE MANAGEMENT.

The entire management is in the hands of a Board of Directors of leading business men—men of executive and financial ability, men of "made reputation," men who can be counted upon to carefully and honestly direct the affairs of the enlarged company and see that each and every stockholder receives every dollar of the earnings of his stock.

The Officers and Directors are as follows:  
A. L. IRISH, President and Treasurer.  
GEORGE G. MEITZGER, Vice-President.  
W. F. TYLER, Secretary.

## DIRECTORS.

GEORGE G. MEITZGER, President Metzger Seed & Oil Co., Fremont 1920, Boys Work, Director Toledo & Indiana Ry., Director Toledo National Bank.  
W. F. TYLER, Attorney of Swayne, Hayes, Fuller & Tyler.  
LAWRENCE H. LUCKER, President Minneapolis Phonograph Co.  
O. C. REED, Manager New York Branch Talk-O-Phone Company.  
A. L. IRISH, President Talk-O-Phone Co.  
GEORGE CHASE, Vice President of Kohler & Chase, San Francisco, Cal.  
J. C. JOHNSON, of J. C. Groves & Co., Cincinnati, Ohio.

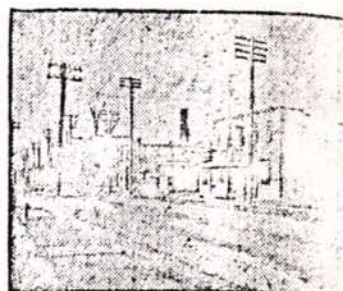
## Extent of Present Factory.

That you may have a better idea of the real extent of this factory, than is given by the photograph, here is the floor space in actual use:

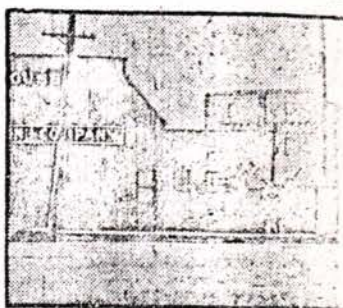
Machine Room.....	9,000 sq. ft.
Assembling Room.....	4,000 sq. ft.
Packing and Shipping Room.....	4,000 sq. ft.
Painting and Baking Room.....	2,000 sq. ft.
Painting Room.....	2,000 sq. ft.
Engine and Boiler Room.....	2,500 sq. ft.
Rough Stock Room.....	1,700 sq. ft.
Finished Stock Room.....	1,500 sq. ft.
Enameling.....	1,500 sq. ft.
Foundry.....	2,000 sq. ft.
Quake storage.....	1,500 sq. ft.
Storage.....	10,200 sq. ft.
Office.....	4,500 sq. ft.
Reception.....	1,500 sq. ft.
<b>Total Floor Space.....</b>	<b>58,500 sq. ft.</b>

We now employ about 200 men in this factory, but to run the output up to 750 machines per day will require 400 men, and these extra men will be used largely for assembling. We require no additional factory space or machinery to turn out 750 machines a day, and, remember, these

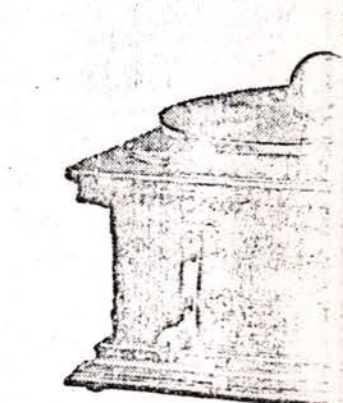
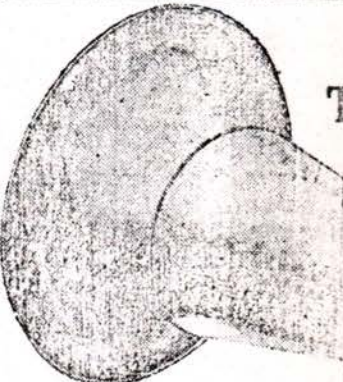
THE TALK-O-PH



View from Central-av., Showing



View Showing



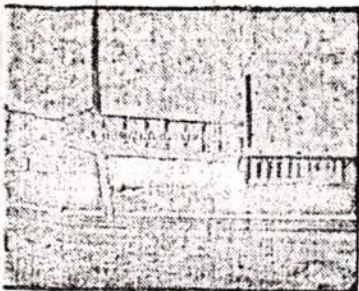
750 machines a day mean over \$1,000,000 annual profit.

## A Few Words About the Product of the Great Factory. THE TALK-O-PHONE.

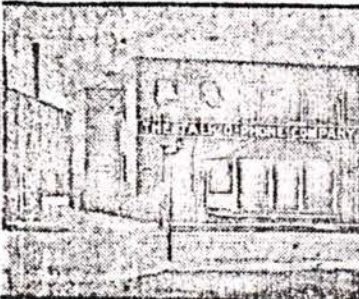
This machine is a superior type of the disc reproducer and up-to-date in every particular. It is made in various grades and models ranging in retail price from \$18.00 to \$25.00 each. In addition to all such desirable features as multiple springs to give it long running power and permit winding while in operation; governor controlled to increase or decrease speed; hand raising or lowering key; taper arm with revolving horn; the Talk-O-Phone also has the MECHANICAL FEED, a device which moves the reproducer across the record independent of the scratching of the needle. This wonderful new device renders the New Taper Arm Talk-O-Phone a marvelous sound reproducer and a great record saver.

Appreciating that the grating, grinding noises of all disc reproducing machines are obnoxious, we have spent a fortune for the past year in perfecting a



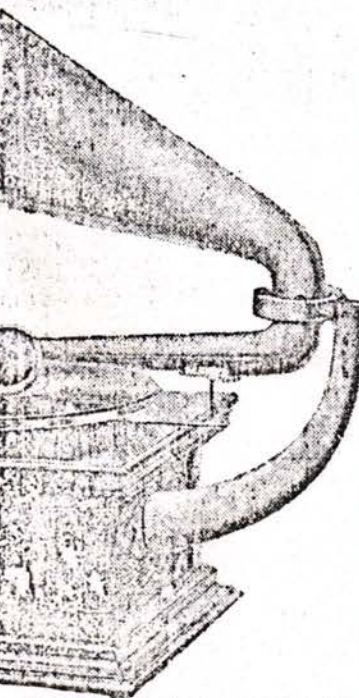


Large Office Buildings in Foreground.



Wagon Entrance

## The Talk-O-Phone



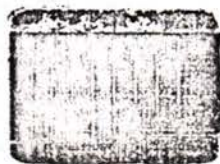
Phone that would be entirely free from all foreign sounds and only reproduce the pure musical tones. We found that the dragging of the needle in order to propel the reproducer across the record was the cause of all the trouble. To obviate this we invented the MECHANICAL FEED, a device to propel the reproducer across the record entirely independent of the needle. The marvelous, clear reproductions resulting from this new device must be heard to be appreciated. This too, is a great record saver, for there is no chance to scratch the needle across the record.

It will be observed that the New Talk-O-Phone operated on this principle gets entirely away from the old fundamental principle of reproducing machines, namely, the needle feed.

Our patents on this new device are very broad, and this arrangement can not be used on another machine. We do not operate under any shop rights or license from any one.

Our present output is said to be about 40 of the largest and strongest concerns in

# A Local Endorsement Money Could Not Buy

Talk-o-Phone Co.,  
Toledo, Ohio.

Gentlemen:-

Tremendous increase in sales has given us great faith in the future of the Talking Machine Business and, therefore, the future of the Talk-o-Phone.

Judging from our experience with the Talk-o-Phone, your business should so increase as to make your stock an extremely good money maker.

Yours very truly,  
*Samuel S. Smith* Dept. Manager

**JOHN W. SMITH COMPANY**  
**POWELL & COY.**  
190-20 W. WABASH ST.  
Chicago, Febr. 13th, 1906.

this country who handle talking machines. These connections, as you can see from the following list, extend from the Atlantic to the Pacific.

D. S. Johnston & Co., Seattle, Wash.  
Conroy Piano Co., St. Louis, Mo.  
F. P. Crotty & Co., Minneapolis, Minn.  
J. C. Green & Co., Cincinnati, Ohio.  
C. W. Marvin Piano Co., Detroit, Mich.  
Hayes Music Co., Toledo, Ohio.  
Butler Bros., St. Louis, Mo.  
McGraw Bros., Milwaukee, Wis.  
American Talking Machine Co., Omaha, Neb.  
William Doeringer Co., La Crosse, Wis.  
Alexander-Elyria Co., Atlanta, Ga.  
Rogers Mfg. Co., New York City.  
Keen Talking Machine Co., Philadelphia, Pa.  
Siegel, Cooper & Co., Chicago, Ill.  
John N. Smith Co., Chicago, Ill.  
Chicago Music Co., Chicago, Ill.  
William Tuck & Bro., Chicago, Ill.  
Southern California Music Co., Los Angeles, Cal.  
Eliars Piano House, Tacoma, Wash.  
Powers & Henry, Pittsburg, Pa.  
Harger & Ellis, Dubuque, Ia.  
National Piano Co., Lansing, Mich.  
Willard Bryant, 218 Woodward-av., Detroit, Mich.  
Neal, Clark & Neal, Buffalo, N. Y.  
C. B. House, New York City.  
William Tuck & Bro. Co., Inc., New York City.  
Montowitz & Herbach, Philadelphia, Pa.  
Butler Bros., Chicago, Ill.  
Rudolph Wurttizer Co., Chicago, Ill.  
James I. Lyons, Chicago, Ill.  
Kohler & Chase, San Francisco, Cal.  
Eliars Piano House, Spokane, Wash.  
Eliars Piano House, Portland, Ore.  
Theodore F. Benson Co., Pittsburg, Pa.  
Minnesota Phonograph Co., St. Paul, Minn.  
W. C. DeForest & Son, New Castle, Pa.  
Nat. Automobile Fire Alarm Co., New Orleans, La.  
Charles N. Fisher, Houston, Tex.  
The Patmeyer Co., Austin, Tex.  
Eliars Musical Co., Cleveland, Ohio.  
Talking Machine Co., Rochester, N. Y.  
Carlin & Lemox, Indianapolis, Ind.  
Berchelman Bros., Baltimore, Md.  
Brown, Page & Hillman Co., Peoria, Ill.  
That these concerns handle Talk-O-Phones in quantities you may judge from the list of a few of our orders:  
Kohler & Chase, San Francisco, Cal., required a signed contract from us agreeing if necessary to furnish them 6,000 machines per month for a year.  
T. F. Bontel Co. gave order Jan. 28, '06 for 800 machines.  
D. S. Johnston Co. Seattle, Wash. shipped them 1,000 machines Sept. 22, '05 and 920 machines Oct. 2, '05. 1,000 machines Oct. 4, '05.  
Shipped Eliars Piano House, Spokane, Wash., 1,000 machines, Sept. 16, '05.  
Southern California Music Co., Los Angeles, gave one order for 12,000.  
John M. Smith Co., Chicago, gave order Jan. 12, '06 for 500 machines.  
Conroy Piano Co., St. Louis, Mo., nearly always order ordered at a time.  
P. A. Powers, Buffalo, N. Y., bought carload.  
A London house gave order for 300,000 worth of machines.  
Gottschner & Wient Co., Cleveland, Ohio gave one order for 10,000 machines.  
American Talking Machine Co., Omaha, Neb., bought 675 machines, one order, Jan. 6, '06.  
Minnesota Phonograph Co., St. Paul, Minn., bought 1100 machines, one order, Jan. 6, '06.

### Subscribe at Once So You May Not Fail to Secure This Stock

If you desire further particulars before subscribing, write at once. For remembrance, only the first \$100,000 will be sold at \$50.00 cash (\$100.00 installment) per share, after that \$12.50 per share. Also remember that any semi-annual dividend paid in July will be allowed for 6 months' time on stock purchased before March 1st, 1906. It is surely not stereotyped to say to you on this proposition—Act Now. The privilege is reserved of withdrawing the stock from the market at any time development of the business would indicate the advisability of such action. It is offered now at considerably less than its earning value in the estimation of the directors, and will positively be advanced 25% after the first \$100,000 is sold.

FILL OUT, CUT OFF AND MAIL THIS COUPON TODAY.

G. T. 1906.

A. L. IRISH, President

THE TALK-O-PHONE COMPANY, Toledo, O.

Dear Sir:- I hereby subscribe for..... shares of the capital stock of the Talk-O-Phone Company of Toledo, Ohio, and agree to pay you..... dollars per share (\$50.00 per share if your remittance pays your subscription in full, or \$12.50 per share if you pay on installments of \$1.00 now and \$1.00 per month per share).

I enclose herewith my remittance for.....

Yours truly,

Name.....

City..... State.....

Note: If you have \$25.00 or can save \$10.00 per month for ten months you can own ten shares in this company and enjoy the large dividend and increase in value of the stock. You will never regret subscribing for all you can pay for, either cash or monthly installments.

### Vast Fortunes Made in Past Opportunities Which Can Be Duplicated in This Enterprise

Do you remember that the stock of the American Screw Co. sold at 50 per share WHEN THEY NEEDED MONEY and went steadily up to \$500 per share? A man invested \$100 in this and found himself worth one million dollars.

Standard Oil Stock went begging at 10c per share. It is now selling at over \$200 per share. \$100 invested in this stock in its early days means \$500,000 now.

The history of Western Union Telegraph reads much like this, as does the Bell Telephone.

Do you appreciate that when this company earns net \$1,000,000 per year (and we have clearly shown how this can be done in two years' time) this stock we are now selling for \$10.00 per share will be worth \$200.00 per share.

### What Your Money Should Earn.

\$0.50 cash or \$10.00 payable \$1.00 down and \$1.00 a month for 9 months will buy 1 share of stock, par value \$10.00, estimated value within one year \$25.00, within two years \$50.00. During these two years estimated dividends \$1.00.

\$10.00 cash or \$20.00 payable \$2.00 down and \$2.00 a month for 9 months will buy 2 shares of stock, par value \$10.00, estimated value within one year \$50.00, within two years \$100.00. During these two years estimated dividends \$2.00.

\$47.50 cash or \$50.00 payable \$5.00 down and \$5.00 a month for 9 months will buy 5 shares of stock, par value \$10.00, estimated value within one year \$125.00, within two years \$250.00. During these two years estimated dividends \$5.00.

\$95.00 cash or \$100.00 payable \$10.00 down and \$10.00 a month for 9 months will buy 10 shares of stock, par value \$10.00, estimated value within one year \$250.00, within two years \$500.00. During these two years estimated dividends \$10.00.

\$150.00 cash or \$200.00 payable \$20.00 down and \$20.00 a month for 9 months will buy 20 shares of stock, par value \$10.00, estimated value within one year \$500.00, within two years \$1,000.00. During these two years estimated dividends \$20.00.

\$475.00 cash or \$500.00 payable \$50.00 down and \$50.00 a month for 9 months will buy 50 shares of stock, par value \$10.00, estimated value within one year \$1,250.00, within two years \$2,500.00. During these two years estimated dividends \$50.00.

\$950.00 cash or \$1,000.00 payable \$100.00 down and \$100.00 a month for 9 months will buy 100 shares of stock, par value \$10.00, estimated value within one year \$2,500.00, within two years \$5,000.00. During these two years estimated dividends \$100.00.

\$1,750.00 cash or \$2,000.00 payable \$200.00 down and \$200.00 a month for 9 months will buy 200 shares of stock, par value \$10.00, estimated value within one year \$5,000.00, within two years \$10,000.00. During these two years estimated dividends \$200.00.



FINANCIAL

FINANCIAL

FINANCIAL

FINANCIAL

# Greatest Industrial Stock

**This is a Half Million Dollar Manufacturing Co.,  
Now Paying 10 Per Cent. Per Year**

**An Investment in a Legitimate Manufacturing Company  
of A1 Commercial Standing, Indorsed by the  
Business Men All Over the United  
States Who Are Daily Selling the  
Products of This Factory.**

**Here is an Opportunity to Make a Small Investment  
Pay You an Income for Life.**

**A Wealth-Producing Machine That is the Peer of  
Every Similar Machine on the Market.**

THE TALK-O-PHONE COMPANY OF TOLEDO, OHIO, heretofore a \$500,000 corporation, has found it advisable, owing to tremendous increase in the volume of their business, to increase their Capital Stock to \$1,000,000, and now offer for sale to the public a limited amount of this capital stock. This company was organized under Ohio laws in January of 1904 to take over certain valuable patents and manufacture talking machines of the disc pattern. During these two years the business has increased by leaps and bounds until now this concern has orders for more machines than the present capacity of the plant and capital of the company will permit it to turn out.

It has been necessary to build a very large plant (see photos, which only show a portion) and to invest large sums in machinery, equipment, patterns, patents and materials, so that these items alone show a conservative valuation of \$610,300.14.

## Profits.

During the past year of 1905 this concern earned 8 per cent. on its stock over and above an interest charges and in addition to this showed a surplus.

The directors have decided to pay a 5 per cent. semi-annual dividend in July, 1906. The purpose of the sale of this additional stock is to increase the working capital so that this concern may do as its other two large competitors do—that is, sell to the "large quantity" houses who require four to six months' terms, and in this way work the factory to its limit of 750 machines a day. This amount of output can readily be sold at a good profit.

The average profit is \$5.00 per machine. Turning out 750 machines a day would make a profit of \$3750 per day, or \$1,170,000 profit per year. No gold mine, no oil well, no plantation scheme could hope to equal such returns; and no bond, no railroad stock could be a more secure or solid investment. This stock that we now offer at \$10 per share should be worth on this basis of earnings \$200 per share in two years' time. OUR PRESENT FACTORY EQUIPMENT IS AMPLY SUFFICIENT to turn out all the machines necessary to make this \$1,000,000 yearly profit.

The situation on patents is such that further competition need not be looked for, and on this particular point this company is extremely fortunate, for in addition to their valuable patents before possessed by them, they have very recently been allowed a patent on a mechanical feed device which was the one thing necessary to make perfect the disc reproducing machine by absolutely doing away with the old grating sound which has heretofore marred all sounds

reproduced by such machines. There being no fear of further competition due to this patent situation, the present profit scale can be maintained and even improved upon.

## Extent of Present Factory.

That you may have a better idea of the real extent of this factory than is given by the photograph, here is the floor space in actual use:

Machine Room	9,000 sq. ft.
Assembling Room	4,000 sq. ft.
Packing and Shipping Room	4,000 sq. ft.
Polishing and Buffing Room	2,000 sq. ft.
Plating Room	1,600 sq. ft.
Kiln and Boiler Room	2,400 sq. ft.
Rough Storage Room	1,700 sq. ft.
Finished Stock	1,000 sq. ft.
Enameling	1,800 sq. ft.
Foundry	2,400 sq. ft.
Cabinet Storage	4,000 sq. ft.
Office	19,300 sq. ft.
Barns	6,000 sq. ft.

Total Floor Space 56,500 sq. ft.

We now employ about 200 men in this factory, but to run the output up to 750 machines per day will require 400 men.

## A Safe Management.

The entire management is in the hands of a Board of Directors of leading business men of executive and financial ability, men of "made reputation," men who can be counted upon to capably and honestly direct the affairs of the enlarged company, and see that each and every stockholder receives every dollar of the earnings of his stock.

The Officers and Directors are as follows:  
A. L. IRISH, President and Treasurer.  
GEORGE C. METZGER, Vice President;  
President Metzger, Seed & Oil Co., Toledo;  
President Toledo Store Works, President Broadway Savings Bank, Director Toledo National Bank.

W. P. TYLER, Secretary.  
George Chase, Vice President, Kohler & Chase, San Francisco, Cal.

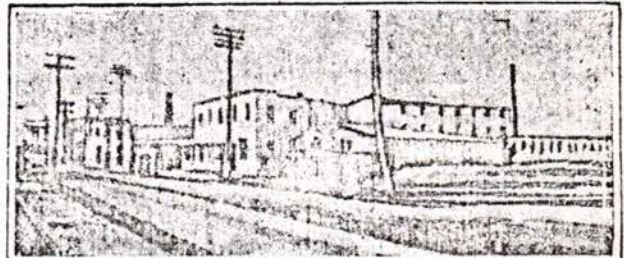
Lawrence H. Lucker, President Minnesota Phonograph Co., St. Paul, Minn.  
J. C. Greene, of J. C. Greene & Co., Cincinnati, Ohio.

W. C. Thompson, Banker and Broker, Toledo.  
W. R. Edgar, Cashier Broadway Savings Bank, Toledo, Ohio.

O. C. Reed, Manager New York Branch Talk-O-Phone Co.,  
Jake Gerold, Capitalist, Toledo, Ohio.

**THE TALK-O-PHONE CO.,  
MANUFACTURING THE GREAT**

**THE TALK-O-PHONE FACTORY**



View from Central av., Showing Office Buildings in Foreground.

## The Talk-O-Phone.

This machine is a superior type of the disc reproducer and up-to-date in every particular. It is made in various grades and models, ranging in retail price from \$18.00 to \$50.00 each. In addition to all such desirable features as multiple springs to give it long running power and permit winding while in operation; governor control to increase or decrease speed, thereby raising or lowering key; taper arm with revolving horn; the Talk-O-Phone also has the MECHANICAL FEED, a device which moves the reproducer across the record independent of the scratching of the needle. This wonderful new device renders the new Taper Arm Talk-O-Phone a marvelous sound producer and a great record saver. Appreciating that the grating, grinding noises of all disc reproducing machines are obnoxious, we have been experimenting for the past year

## AN ACTUAL PROFIT-PRODUCER

Our present output is sold to about 40 of the largest and strongest concerns in this country who handle talking machines. These connections, as you can see from the following list, extend from the Atlantic to the Pacific:

Keen Talking Machine Co., Philadelphia, Pa.  
Moskowitz & Herbach, Philadelphia, Pa.  
D. S. Johnston & Co., Seattle, Wash.  
Conroy Piano Co., St. Louis, Mo.  
J. P. Grotty & Co., Minneapolis, Minn.  
J. C. Greene & Co., Cincinnati, Ohio.  
J. W. Martin Piano Co., Detroit, Mich.  
Hayes Music Co., Toledo, Ohio.  
Butler Bros., St. Louis, Mo.  
McGraw Bros., Milwaukee, Wis.  
American Talking Machine Co., Omaha, Neb.  
William Dörflinger Co., La Crosse, Wis.  
Alexander Kline Co., Atlanta, Ga.  
Rogers Mfg. Co., New York City.  
Siegel, Cooper & Co., Chicago, Ill.  
Joan M. Smyth Co., Chicago, Ill.  
Chicago Music Co., Chicago, Ill.

## SOME ORDERS THAT ARE

Kohler & Chase, San Francisco, Cal. required a signed contract from us covering, if necessary, to furnish them 6000 machines per month for a year.  
T. F. Bentel Co. gave order Jan. 20, '06, for 800 machines.  
D. S. Johnston Co., Seattle, Wash., shipped them 1000 machines Sept. 21, '05; 950 machines Oct. 2, '05; 1000 machines Oct. 4, '05.  
Shirley Eilers Piano House, Spokane, Wash., 1355 machines, Sept. 16, '05.  
Southern California Music Co., Los Angeles.

Our patents on the new devices are very broad, and this arrangement cannot be used on another machine. We do not operate under any shop rights or license from any one.

**Vast Fortunes Made in Past Opportunities, Which Can Be Duplicated in This Enterprise.**

Do you remember that the stock of the American Screw Company sold at 5 cents per share WHEN THEY NEEDED MONEY and went steadily on to \$500.00 per share? A man invested \$100.00 in this and found himself worth one million dollars.

Standard Oil stock went begging at 10 cents per share and it is now selling at over \$500.00



to perfect a Talk-O-Phone that would be entirely free from all foreign sounds and only reproduce the pure musical tones. We found that the dragging of the needle in order to propel the reproducer across the record was the cause of all the trouble. To obviate this we invented the MECHANICAL FEED, a device to propel the reproducer across the record entirely independent of the needle. The marvelous, clear reproductions resulting from this new device must be heard to be appreciated.

**THE TALK-O-PHONE CO., TOLEDO,**  
Raymond K. Wife  
Research Library  
**HAERTHER, LEGG & CO., Fiscal Agents, 547**



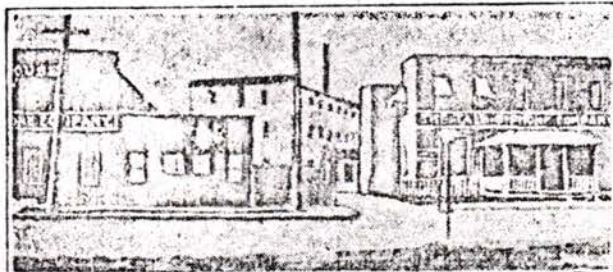
House Exhibit No. 3.

# Stock Offered for Investment

## The First Offering of Stock, Dividend Guaranteed, for the Sole Purpose of Increasing Our Output

### E CO., OF TOLEDO, OHIO, GREAT TALK-O-PHONE MACHINE

#### E FACTORY, TOLEDO, OHIO



ground.

View from the Main Street.

#### PROFIT-PRODUCING COMPANY

to of the country connecting list. Phila- elphin. William Tusk & Bro., Chicago, Ill. Southern California Music Co., Los Angeles, Cal. Elmer Piano House, Tacoma, Wash. Powers & Henry, Pittsburgh, Pa. Harger & Hiles, Dubuque, Ia. National Piano Co., Lansing, Mich. William Bryant, 218 Woodward ave., Detroit. Neil, Cary & Neal, Buffalo, N. Y. C. B. Rogers, New York City. William Tusk & Bro. Co., Inc., New York City. Butler Bros., Chicago, Ill. Randolph Wurlitzer Co., Chicago, Ill. James I. Lyons, Chicago, Ill. Kohler & Chase, San Francisco, Cal. Elmer Piano House, Spokane, Wash. Elmer Piano House, Buffalo, Ore. Theodore F. Bente Co., Pittsburgh, Pa. Minnesota Phonograph Co., St. Paul, Minn. W. E. DeWolfe & Son, New Castle, Pa. Nat. Automatic Fire Alarm Co., New Orleans. Charles N. Fisher, Houston, Tex. The Futurist Co., Austin, Tex. Collins Musical Co., Cleveland, O. Talking Machine Co., Rochester, N. Y. Carlin & Lombard, Indianapolis, Ind. Remondier Bros., Baltimore, Md. Brown, Fair & Hillman Co., Peoria, Ill.

#### THAT ARE ON OUR BOOKS

relace, attract ry, to a per '06, for shipped machines Wash. Angeles. per share, \$100.00 invested in this stock in its early days means \$800.00 now. \$100.00 invested in Air Brake stock a few years ago is worth to-day \$2400. \$100.00 invested in Bell Telephone stock a few years ago is now worth \$10,000, and the history of the Western Union Telegraph reads very much like this. The Dunlap Tire Company is another modern story of Aladdin's Lamp. It commenced with a working capital of \$112,000. The company had been in operation about two years when it was sold for \$15,000,000 cash. The original stockholders had then received in dividends and premiums the sum of \$1,200,000. Another corporation later purchased the business for \$25,000,000. The men who joined this enterprise at its inception had no reason to complain of the EARNING POWER OF MONEY.

Do you appreciate that someone this company earns over \$1,000,000 per year (and we have clearly shown how this can be done in two years time) this stock we are now selling for \$10.00 per share will be worth \$200.00 per share?

#### Subscribe at Once—To-day.

Six months from to-day, when the stock is off the market, the company earning and paying 10% dividends, and the stock worth probably twenty times what it is selling for to-day, you will wish you had taken our advice.

Remember, only the first \$100,000 will be sold at \$0.50 cash (\$10 in installments) per share; after that \$12.50 per share.

If you desire further particulars before subscribing write us without delay.

The privilege is reserved of withdrawing the stock from the market if the development of the business would indicate the advisability of such action.

It is offered now at considerably less than its earning value in the estimation of the directors and will positively be advanced 25 per cent. after the first \$100,000 is sold.

#### What Your Investment Will Earn.

\$4750 cash or \$5,000 payable \$500 down and \$500 a month for 9 months will buy 300 shares of stock, par value \$10.00, estimated value within one year \$12,500, within two years \$25,000. During these two years estimated dividends \$1,800.

\$950 cash or \$1,000 payable \$100 down and \$100 a month for 9 months will buy 100 shares of stock, par value \$10.00, estimated value within one year \$12,500, within two years \$25,000. During these two years estimated dividends \$600.

\$475 cash or \$500 payable \$50.00 down and \$50.00 a month for 9 months will buy 30 shares of stock, par value \$10.00, estimated value within one year \$1,250.00, within two years \$2,500.00. During these two years estimated dividends \$150.00.

\$100.00 cash or \$200.00 payable \$20.00 down and \$20.00 a month for 9 months will buy 20 shares of stock, par value \$10.00, estimated value within one year \$250.00, within two years \$500.00. During these two years estimated dividends \$60.00.

\$95.00 cash or \$100.00 payable \$10.00 down and \$10.00 a month for 9 months will buy 10 shares of stock, par value \$10.00, estimated value within one year \$125.00, within two years \$250.00. During these two years estimated dividends \$60.00.

\$47.50 cash or \$50.00 payable \$5.00 down and \$5.00 a month for 9 months will buy 5 shares of stock, par value \$10.00, estimated value within one year \$125.00, within two years \$250.00. During these two years estimated dividends \$30.00.

\$10.00 cash or \$20.00 payable \$2.00 down and \$2.00 a month for 9 months will buy 2 shares of stock, par value \$10.00, estimated value within one year \$25.00, within two years \$50.00. During these two years estimated dividends \$6.00.

\$0.50 cash or \$1.00 payable \$0.50 down and \$0.50 a month for 9 months will buy 1 share of stock, par value \$10.00, estimated value within one year \$12.50, within two years \$25.00. During these two years estimated dividends \$3.00.

Our January Profits Were Actually \$8,970.83 Net, Which Equals \$107,649.96 Per Annum on Total Stock at That Time of \$500,000—Over 20%

These 20% Profits Are Assured—a 5% Semi-Annual Dividend Will Be Paid in July, 1906.

#### 100 Per Cent. Profits Probable

Capacity of Plant, 750 machines per day.

Average profit per machine	.....	\$5.00
Profit per day	.....	\$3,750.00
Profit per year (312 days)	.....	\$1,170,000.00
Total capital	.....	\$1,000,000.00
Percentage profit	.....	117 per cent.

The decision to pay a 5 per cent. annual dividend in July still further indicates the value of the Talk-o-Phone stock; and remember these dividends are paid out of the earnings. If you will observe the figures above you will see clearly how these dividends can be paid from profits and this is not guess work, but assured facts. This stock can very easily earn 100 per cent. and with such an earning power its value before the end of this year will be \$200 per share.

#### Why You Should Buy This Stock Now

In 1905 this concern earned 8 per cent. and a surplus on all outstanding stock.

In 1906 it will surely earn from 20 per cent. to 100 per cent. and will begin paying 5 per cent. semi-annual dividends in July, 1906.

In 1906 it will surely turn out 750 machines per day at a profit of \$3.00 per machine, thereby earning over one million dollars (\$1,000,000). This will make the stock you buy now at \$10.00 per share worth \$200.00 per share.

Every dollar paid in this stock will be used to extend the business, for we do not need any larger factory or any more machinery.

It is a safe investment in a thoroughly established, legitimate manufacturing concern of A1 commercial standing, that will pay tremendous profits.

For Banking Reference We Refer by Permission to

The First National Bank, Toledo, O.

The National Bank of Commerce, Toledo, O.

The Broadway Savings Bank, Toledo, O.

The Hamilton National Bank, Chicago, Ill., and

The Bank of California, San Francisco, Cal.

WITH ALL OF WHOM WE DO BUSINESS.

Fill Out, Cut Off and Mail This Coupon To-day

HAERTHER, LEGG & COMPANY, (Fiscal Agents)

Suite 547 Drexel Bldg., Philadelphia, Pa.

Date.....

Gentlemen:

I hereby subscribe for ..... shares of the capital stock of the Talk-O-Phone Company of Toledo, Ohio, and agree to pay you ..... dollars per share (\$0.50 per share if remittance pays the subscription in full, or \$10.00 per share if on installments of \$1.00 now and \$1.00 per month per share). In enclose herewith my remittance for.....

Name.....

P. R.

City.....

State.....

Notes: If you have \$35.00 or can save \$10.00 per month for ten months you can own ten shares in this company and enjoy the large dividends and increase in value of stock. You will never regret subscribing for all you can pay for, either cash or monthly installments.

DO, OHIO

47 Drexel Bldg., Phila.



# An Opportunity to Invest in a Wealth-Producing Machine

FIRST OFFERING

## TALK-O-PHONE CO. STOCK

Paying 10% Annually

THE TALK-O-PHONE COMPANY OF TOLEDO, OHIO, heretofore a \$500,000 corporation, has found it advisable, owing to tremendous increase in the volume of their business, to increase their Capital Stock to \$1,000,000, and now offer for sale to the public a limited amount of this capital stock. This company was organized under Ohio laws in January of 1934 to take over certain valuable patents and manufacture talking machines of the disc pattern. During these two years the business has increased by leaps and bounds until now this concern has orders for more machines than the present capacity of the plant and capital of the company will permit it to turn out.

It has been necessary to build a large plant and to invest large sums in machinery, equipment, patterns, patents and materials, so that these items alone show a conservative valuation of \$619,309.14.

### SUBSCRIBE AT ONCE—TODAY

Six months from today, when the stock is off the market, the company earning and paying big dividends, and the stock worth probably twenty times what it is selling for today, you will wish you had taken our advice. Remember, only the first \$100,000 will be sold at \$9.50 cash (\$10 installments) per share; after that, \$12.50 per share.

If you desire further particulars before subscribing, write us, without delay.

The privilege is reserved of withdrawing the stock from the market, if the development of the business would indicate the advisability of such action.

It is offered now at considerably less than its earning value, in the estimation of the directors, and will positively be advanced 25 per cent. after the first \$100,000 is sold.

### WHAT YOUR INVESTMENT WILL EARN

\$9.50 cash or \$10.00, payable \$1.00 down and \$1.00 a month for 9 months, will buy 1 share of stock, par value, \$10.00, estimated value within one year, \$25.00, within two years, \$50.00. During these two years estimated dividends, \$3.00.

\$19.00 cash or \$20.00, payable \$2.00 down and \$2.00 a month for 9 months, will buy 2 shares of stock, par value, \$10.00, estimated value within one year, \$50.00, within two years, \$100.00. During these two years estimated dividends, \$6.00.

\$47.50 cash or \$50.00, payable \$5.00 down and \$5.00 a month for 9 months, will buy 5 shares of stock, par value, \$10.00, estimated value within one year, \$125.00, within two years, \$250.00. During these two years estimated dividends, \$15.00.

\$95.00 cash or \$100.00, payable \$10.00 down and \$10.00 a month for 9 months, will buy 10 shares of stock, par value, \$10.00, estimated value within one year, \$250.00, within two years, \$500.00. During these two years estimated dividends, \$30.00.

\$190.00 cash or \$200.00, payable \$20.00 down and \$20.00 a month for 9 months, will buy 20 shares of stock, par value, \$10.00, estimated value within one year, \$500.00, within two years, \$1000.00. During these two years estimated dividends, \$60.00.

\$475 cash or \$500, payable \$50.00 down and \$50.00 a month for 9 months, will buy 50 shares of stock, par value, \$10.00, estimated value within one year, \$1250.00, within two years, \$2500.00. During these two years estimated dividends, \$150.00.

\$950 cash or \$1000, payable \$100 down and \$100 a month for 9 months, will buy 100 shares of stock, par value, \$10.00, estimated value within one year, \$2500.00, within two years, \$5000.00. During these two years estimated dividends, \$300.00.

\$4750 cash or \$5000, payable \$500 down and \$500 a month for 9 months, will buy 500 shares of stock, par value, \$10.00, estimated value within one year, \$12500.00, within two years, \$25000.00. During these two years estimated dividends, \$1500.00.

### Why You Should Buy This Stock Now

In 1935 this concern earned 8 per cent. and a surplus on all outstanding stock.

In 1935 it will surely earn from 20 per cent. to 100 per cent., and will begin paying 5 per cent. semi-annual dividends in July, 1936.

In 1936 it will surely turn out 750 machines per day, at a profit of \$5.00 per machine, thereby earning over one million dollars (\$1,000,000). This will make the stock you buy now at \$10.00 per share worth \$200.00 per share.

Every dollar paid in this stock will be used to extend the business, for we do not need any larger factory or any more machinery.

It is a safe investment in a thoroughly established, legitimate manufacturing concern of A1 commercial standing, that will pay tremendous profits.

### 100 Per Cent. Profits Probable

Capacity of Plant, 750 machines per day.

Average profit per machine.....	\$5.00
Profit per day.....	\$3750.00
Profit per year (312 days).....	\$1,170,000.00
Total capital.....	\$1,000,000.00
Percentage profit.....	117 per cent.

The decision to pay a 5 per cent. annual dividend in July still further indicates the value of the Talk-O-Phone stock; and remember, these dividends are paid out of the earnings. If you will observe the figures above you will see clearly how these dividends can be paid from profits, and this is not guesswork, but assured facts. This stock can very easily earn 100 per cent., and with such an earning power its value before the end of this year will be \$200 per share.

### WE REFER BY PERMISSION TO

The First National Bank, Toledo, O.  
The National Bank of Commerce,  
Toledo, O.

The Broadway Savings Bank,  
Toledo, O.

The Hamilton National Bank,  
Chicago, Ill., and

The Bank of California, San  
Francisco, Cal.

### Management.

The entire management is in the hands of a board of directors of leading business men—men of executive and financial ability, men of "inside reputation," men who can be counted upon to capably and honestly direct the affairs of the enterprise, and see that each and every stockholder receives every dollar of the earnings of his stock.

The officers and directors are as follows:  
A. L. THORN, President and Treasurer.  
GEORGE H. MONTGOMERY, Vice President,  
President Metzger and Son Company,  
Toledo.  
J. C. GRIFFIN, President, State Works,  
President Broadway Savings Bank, director  
Toledo National Bank.

W. P. TYLER, Secretary.  
George Chase, Vice President, Kohler &  
Chase, San Francisco, Cal.  
Lawrence H. Lister, President, Minnesota  
Phonograph Company, St. Paul, Minn.

J. C. GRIFFIN, of J. C. GRIFFIN & Co., Cincinnati, Ohio.  
W. C. Thompson, Banker and Broker,  
Toledo.  
W. R. Edgar, Cashier Broadway Savings  
Bank, Toledo, Ohio.

O. C. Reed, Manager New York Branch  
Talk-O-Phone Company.  
Jake Gerold, Capitalist, Toledo, Ohio.

TheTalk-O-Phone  
Company

Toledo, Ohio.

Haerther, Legg &  
Company

Fiscal Agents

541 Drexel Building  
Philadelphia

Fill Out, Cut Off and Mail This Coupon Today

HAERTHER, LEGG & COMPANY (Fiscal Agents)

Date.....

Suite 411, Drexel Building, Philadelphia, Pa.

Gentlemen:

I hereby subscribe for ..... shares of the capital stock of the Talk-O-Phone Company of Toledo, Ohio, and agree to pay you ..... dollars per share (\$9.50 per share if remittance pays the subscription in full, or \$10 per share if on installments of \$1 now and \$1 per month per share). I inclose herewith my remittance for.....

Name.....

P. R.

City.....

State.....

Note: If you have \$6 or can save \$10 per month for ten months, you can own ten shares in this company and enjoy the large dividends and increase in value of stock. You will never regret subscribing \$6 all you can pay for, either cash or monthly installments.

Philadelphia Cord Avenue  
March 30, 1936  
North A. 4  
Thorn  
Research Library



# A LIFE INCOME IS ASSURED

## To Investors in a \$1,000,000 Industrial Enterprise

The Talk-O-Phone Company of Toledo, Ohio, a legitimate manufacturing company of the highest rating, indorsed by representative business men, makes an exceptional offer.

### Rare Opportunity for Profit Sharing by the Public

The business is established and is now on a 10 per cent. dividend paying basis, but an offering of stock is made, dividend guaranteed, for the sole purpose of increasing output and profits.

The history of all new enterprises is the story of fortune building by the pioneers.

Men who invested a dollar in telephone stock lived to receive \$200 return.

Air brake stock worth \$10 a few years ago now commands \$2400.

Oil stock was hawked about for ten cents and now sells at \$600 a share.

Under these circumstances an opportunity such as now is offered to make an investment in that newest and most popular product of modern science and mechanics, the talking machine, means a fortune to those quick to grasp the opportunity.

History always repeats itself.

A dollar invested in talking machine stock now will earn five dollars within two years.

THE TALK-O-PHONE COMPANY OF TOLEDO, OHIO, heretofore a \$500,000 corporation, has found it advisable, owing to tremendous increase in the volume of their business, to increase their capital stock to \$1,000,000, and now offer for sale to the public a limited amount of this capital stock. This company was organized under Ohio laws in January of 1904 to take over certain valuable patents and manufacturing talking machines of the disc pattern. During these two years the business has increased by leaps and bounds until now this concern has orders for more machines than the present capacity of the plant and capital of the company will permit it to turn out.

It has been necessary to build a very large plant and to invest large sums in machinery, equipment, patterns, patents and materials, so that these items alone show a conservative valuation of \$1,000,000.

#### Profits Are Certain.

During the past year of 1905 this concern earned 8 per cent. on its stock over and above all interest

#### A Safe Management.

The entire management is in the hands of a Board of Directors of leading business men of executive and financial ability, men of "made reputation," men who can be depended upon to capably and honestly direct the affairs of the enlarged company, and see that each and every stockholder receives every dollar of the earnings of his stock.

The Officers and Directors are as follows:—  
A. L. HICKS, President and Treasurer;  
GEORGE C. MITCHELL, Vice President;  
President Mortgage Bond & Oil Co., Toledo;  
President Toledo Stone Works, President Broadway Savings Bank, Director Toledo National Bank;  
W. P. TILLEY, Secretary;  
George Shaw, Vice President, Koller & Shaw, San Francisco, Cal.;  
Lawrence H. Lusk, President Minneapolis Photograph Co., St. Paul, Minn.;  
J. C. Groves, of J. C. Groves & Co., Cincinnati, Ohio;  
W. C. Thompson, Banker and Broker, Toledo;  
V. R. Edgar, Cashier Broadway Savings Bank, Toledo, Ohio;  
O. C. Reed, Manager New York Branch Talk-O-Phone Co.;  
John Gerold, Capitalist, Toledo, Ohio.

#### The Talk-O-Phone.

This machine is a superior type of the disc reproducer and operates in every particular. It is made in various grades and models, ranging in retail price from \$18.00 to \$250.00 each in addition to all such desirable features as multiple exposure to give it long running power and permit winding while in operation; governor control to increase or decrease speed, thereby raising or lowering key; tape arm with sensitive boom, the Talk-O-Phone also has the MECHANICAL FEED, a device which permits the recordist to grade the record independent of the scratching of the needle. This wonderful new device renders the new Talk-O-Phone a most desirable and most accurate sound producer and a great record saver.

Appreciating that the grating, grinding action of all disc reproducing machines are obnoxious, we have been experimenting for the last year to perfect a Talk-O-Phone that would be entirely free from all former sounds and only reproduce the pure natural tones. We found that the dragging of the needle in order to propel the reproducer across the record was the cause of all the trouble. To obviate this we invented the MECHANICAL FEED, a device to propel the reproducer across the record entirely independent of the needle. The mechanical linear reproduction is entirely free from this new device must be heard to be appreciated.



charges, and in addition to this showed a surplus.

The directors have decided to pay a 5 per cent. semi-annual dividend in July, 1906. The purpose of the sale of this additional stock is to increase the working capital so that this concern may do as its other two large competitors do—that is, sell to the "large quantity" buyers who receive their orders in a few days, and in this way work the factory to its limit of 750 machines a day. This amount of output can readily be sold at a good profit.

The average profit is \$5.00 per machine. Turning out 750 machines a day would make a profit of \$3,750 per day, or \$1,125,000 per year. No solid gains, no oil wells, no plantation scheme could hope to equal such returns, and no bond, no railroad stock could be a more secure investment. This stock that we now offer at \$10 per share should be worth no less than \$200 per share in two years' time. OUR PRUDENT FACTORY EQUIPMENT IS AMPLY SUFFICIENT to turn out all the machines necessary to make this \$1,000,000 yearly profit.

#### HOW FORTUNES ARE MADE

Some Fast Opportunities, Which May, However, Be Duplicated by Prompt Action.

Do you remember that the stock of the American Express Company sold at 2 cents per share when THEY NEEDED MONEY and went steadily up to \$100.00 per share? A man invested \$100.00 in this and found himself worth one million dollars.

Standard Oil stock went begging at 10 cents per share and it is now selling at over \$500.00 per share.

Do you remember that the stock of the Western Union Telegraph sold at 10 cents per share and it is now selling at over \$100.00 per share?

The Edison Company is another modern story of a little "long" commencing with a working capital of \$1,000,000. The company had been in operation about one year when it was sold for \$15,000,000 cash. The original stockholders had then received in dividends and

#### Why You Should Buy This Stock Now

In 1905 this concern earned 8 per cent. and a surplus of all outstanding stock.  
In 1906 it will surely earn from 20 per cent. to 30 per cent. and will begin paying a quarterly semi-annual dividend in July, 1906.  
In 1908 it will surely turn out 750 machines per day at a profit of \$5.00 per machine, thereby making over one million dollars (\$1,125,000). This will make the stock worth not less than \$200.00 per share within two years.  
Every dollar paid in this stock will be used to extend the business, for we do not need any larger factory.

Our January Profits Were Actually \$5,976.83 Net, Which Equals \$107.64% Per Annum on Total Stock at That Time of \$500,000—Over 20%.

These 20% Profits Are Assured—A 5% Semi-Annual Dividend Will Be Paid in July, 1906.

100 Per Cent. Profits Probable



Under these circumstances an opportunity such as now is offered to make an investment in that newest and most popular product of modern science and mechanics, the talking machine, means a fortune to those quick to grasp the opportunity.

History always repeats itself.

A dollar invested in talking machine stock now will earn five dollars within two years.

**THE TALK-O-PHONE COMPANY OF TOLEDO, OHIO**, heretofore a \$500,000 corporation, has found it advisable, owing to tremendous increase in the volume of their business, to increase their capital stock to \$1,000,000, and now offer for sale to the public a limited amount of this capital stock. This company was organized under this law in January of 1904 to take over certain valuable patents and manufacturing talking machines of the disc pattern. During three two years the business has increased by leaps and bounds until now this concern has orders for more machines than the present capacity of the plant and capital of the company will permit it to turn out.

It has been necessary to build a very large plant and to invest large sums in machinery, equipment, patterns, patents and materials, so that these items alone show a conservative valuation of \$619,500.14.

#### Profits Are Certain.

During the past year of 1905 this concern earned 8 per cent. on its stock over and above all interest

#### A Safe Management.

The entire management is in the hands of a Board of Directors of leading national men of executive and financial ability, one of "made reputation," men who can be counted upon to reliably and honestly direct the affairs of the enlarged company, and are that each and every stockholder receives every dollar of the earnings of his stock.

The Officers and Directors are as follows:—  
A. L. LEIDY, President and Treasurer;  
GEORGE C. METZGER, Vice President;  
President Manager, West & Co., Toledo;  
President Toledo Store Works, President Broadway Savings Bank, Director Toledo National Bank.

W. F. TIER, Secretary.  
George Chase, Vice President, Koller & Chase, San Francisco, Cal.

Lawrence H. Lockyer, President, Minneapolis Photograph Co., St. Paul, Minn.

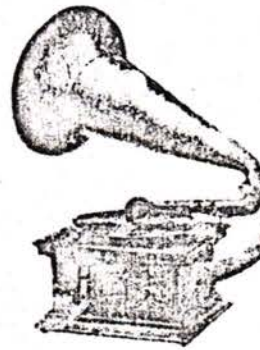
J. C. Groves, of J. C. Groves & Co., Cincinnati, Ohio.

W. C. Thompson, Banker and Broker, Toledo.  
W. B. Edgar, Cashier, Broadway Savings Bank, Toledo, Ohio.  
O. C. Reed, Manager, New York Branch Talk-O-Phone Co.  
John Gerold, Capitalist, Toledo, Ohio.

#### The Talk-O-Phone.

This machine is a superior type of the new reproducer and up-to-date in every particular. It is made in various grades and models, ranging in retail price from \$15.00 to \$50.00 each. In addition to all such desirable features as multiple upstage to give it long running power and permit winding while in operation; governor control to increase or decrease speed; thereby raising or lowering key; tape arm with revolving horn; the Talk-O-Phone also has the MECHANICAL FEED, a device which permits the reproduction across the record independent of the scratching of the needle. This wonderful new device renders the new Taper Horn Talk-O-Phone a marvellous sound producer and a great record saver.

Appreciating that the grating, grating nature of all other reproducing machines are obnoxious, we have been experimenting for the past year to perfect a Talk-O-Phone that would be entirely free from all foreign sounds and only reproduce the pure vocal tones. We found that the dragging of the needle in order to propel the reproducer across the record was the cause of all the trouble. To obviate this we invented the MECHANICAL FEED, a device to propel the reproducer across the record entirely independent of the needle. The marvellous clear reproductions resulting from this new device must be heard to be appreciated.



charges, and in addition to this showed a surplus.

The directors have decided to pay a 5 per cent. semi-annual dividend in July, 1906. The purpose of the sale of this additional stock is to increase the working capital so that this concern may do as its other two large competitors do—that is, sell its "large quantity" houses who receive four to six months' wages, and in this way work the factory to its limit of 750 machines a day. This amount of output can readily be sold at a good profit.

The average profit is \$5.00 per machine. Turn out 750 machines a day would make a profit of \$3,750 per day, or \$1,125,000 profit per year. To add more, no mechanical advance could come to equal such returns; and no bond, no railroad stock could be a more secure or solid investment. This stock that we now offer at \$10 per share should be worth on the basis of average \$200 per share in ten years' time. PRESENT FACTORY EQUIPMENT IS AMPLY SUFFICIENT to turn out all the machines necessary to make this \$1,000,000 yearly profit.

#### HOW FORTUNES ARE MADE

Some Past Opportunities, Which May, However, Be Duplicated by Prompt Action.

Do you remember that the stock of the American Shoe Company sold at 5 cents per share WHEN THEY NEEDED MONEY and steadily rose to \$100.00 per share? A man invested \$100.00 in this and found himself worth one million dollars.

Standard Oil stock went begging at 10 cents per share and it is now selling at over \$800.00 per share. \$100.00 invested in this stock in its early days means \$800,000 now.

\$100.00 invested in Air Brake stock a few years ago is worth to-day \$2100.

Stocks invested in Pullman stock a few years ago is now worth \$100.00 and the history of the Western Union Telegraph reads very much like this.

The Dunlop Tire Company is another golden story of Alaska's Leap. It commenced with a working capital of \$12,000. The company had \$100,000 in assets about two years when it was sold for \$1,000,000 cash. The original stock holders had then received in dividends and

#### Why You Should Buy This Stock Now

In 1905 this concern earned 8 per cent. and a surplus on all outstanding stock.  
In 1904 it will surely earn from 10 per cent. to 100 per cent. and will begin paying 4 per cent. semi-annual dividends in July, 1906.  
In 1906 it will surely turn out 750 machines per day at a profit of \$5.00 per machine, thereby earning over one million dollars (\$1,125,000). This will make the stock 100 per share at \$10.00 per share worth \$200.00 per share.

Every dollar paid in this stock will be used to extend the business, for we do not need any larger factory or any more machinery.

It is a safe investment in a thoroughly established, legitimate manufacturing concern of international standing that will pay interest on its profits.

For Banking Reference We Refer by Permission to:

The First National Bank, Toledo, O.  
The National Bank of Commerce, T. de, O.  
The Broadway Savings Bank, Toledo, O.  
The Hamilton National Bank, Chicago, Ill.  
and  
The Bank of California, San Fran., Cal.  
With all of whom we do business.

The situation no person is aware that further competition need not be looked for, and on this particular point this company is extremely fortunate. For in addition to their valuable patents before purchased by them, they have very recently been awarded a patent on a mechanical feed device which was the one thing necessary to make perfect the disc reproducing machine; he absolutely perfect near with the old gramophone which has heretofore earned all would be replaced by such machines. There being no fear of further competition due to this patent situation, the present profit could be so calculated and even insured upon.

#### Extent of Present Factory.

That you may have a better idea of the real extent of this factory, here is the floor space to actual use: Machine Room, 6,000 sq. ft.; Sewing Machine Room, 4,000 sq. ft.; Packing and Shipping Room, 4,000 sq. ft.; Polishing and Buffing Room, 3,000 sq. ft.; Finishing Room, 1,000 sq. ft.; Machine and Motor Room, 3,000 sq. ft.; Storage Room, 1,700 sq. ft.; Painted Stock, 1,400 sq. ft.; Assembly, 1,000 sq. ft.; Foundry, 1,000 sq. ft.; Unburnt Room, 1,000 sq. ft.; Store, 10,000 sq. ft.; Office, 4,000 sq. ft.; Barn, 6,000 sq. ft. Total Floor Space, 50,000 sq. ft.

We now employ about 500 men in this factory, but to run the output up to 750 machines per day will require 600 men.

#### Our January Profits Were Actually

\$8,478.83 Net, Which Equals \$107.64

649.66 Per Annum on Total

Stock at That Time of

\$500,000—Over 20%

These 20% Profits Are Assured—A 5%

Semi-Annual Dividend Will Be Paid

in July, 1906

#### 100 Per Cent. Profits Probable

Capacity of Plant, 750 machines

per day.

Average profit per machine.....\$5.00

Profit per day.....\$3,750.00

Profit per year (312 days).....\$1,170,000.00

Total Capital.....\$1,000,000.00

Per centage profit.....117 per cent.

The decision to pay a 5 per cent. annual dividend in July will further indicate the value of the Talk-O-Phone stock and machinery. These dividends are paid out of the machine. If you will purchase the shares above you will not only receive these dividends but will also receive the dividends on the stock which you own. This stock can very easily earn 100 per cent. and with such an earning power the value before the end of this year will be \$20 per share.

prevents the sale of \$2,200,575. Another corporation later purchased the business for \$20,000,000.

The men who joined this enterprise at its beginning had no money to complete the

FEEDING PATENT OF MONEY.

Do you appreciate the value of this company when over \$1,000,000 per year (and we have already shown that it can be shown in this year) times this stock, we are now trading at \$100 per share will be worth \$200.00 per share.

Fill Out, Cut 58 and Mail This Coupon To-day

HAERTHER, LEGG & COMPANY,

(Floor Agents)

Date.....

Name.....

Address.....

City.....

State.....

Now, if you have \$100.00 or can save \$100.00

monthly, we will give you 100 shares of our

stock and you will enjoy the large dividends and

dividend of \$100.00 per share. We will guarantee

you a handsome dividend of \$100.00 per share, either

cash or stock, after 100 shares.

**THE TALK-O-PHONE CO., TOLEDO, O.**  
**HAERTHER, LEGG & CO.**



# Special Notice

A. L. Irish, President and Treasurer of the Talk-O-Phone Company, of Toledo, Ohio, is in town and has notified the fiscal agents that the Board of Directors have declared a semi-annual 5 per cent. dividend, payable July 1st, 1906, to all those stockholders on the books of the company at that time.

We are offering for sale stock of the Talk-O-Phone Company of Toledo, Ohio, manufacturing the great Talk-O-Phone Machine.

This is a half-million dollar company now paying ten per cent. per year.

The January profits of this company were actually \$8,970.83 net, which equals \$107,649. 96 per annum on the total stock of at that time of half-million dollars, which is twenty per cent.

A five per cent. semi-annual dividend will be paid in July, 1906.

The Talk-O-Phone Company was organized under the laws of the State of Ohio in January, 1904, to take over valuable patents and to manufacture talking machines of the disc pattern. During these two years the business has increased so rapidly that the Talk-O-Phone Company now has orders for more machines than the present capacity of the plant and capital of the company permit it to turn out. The capital stock, therefore, has been increased from \$500,000 to \$1,000,000. During the year 1905 the Talk-O-Phone Company earned eight per cent. on its stock above all interest charges, and in addition to this showed a surplus.

The company now employs 200 men in its factory, but must have 400 men to turn out its full capacity of 750 machines per day.

Orders for this output are ready. The average profit per machine is FIVE dollars.

On 750 machines the daily profit would be \$3750.00.

The profit per year of 312 days would be \$1,170,000.00.

Capitalization, one million dollars. Probable percentage of profit, 117 per cent.

No gold mine or oil well or plantation scheme could hope to equal such returns. This stock is being offered at ten dollars per share, and in two years' time it should be worth \$200 per share.

The present factory equipment is amply sufficient to turn out the number of machines necessary to make this great yearly profit.

Our factory on Central Avenue, Toledo, has a total floor space of 87,500 square feet.

Idle money never makes a profit. American Screw Co. originally sold for five cents per share, which is now worth \$500. Standard Oil went begging at ten cents per share, and is now worth \$500. Ten dollars invested in Bell Telephone stock is today worth \$10,000.

We are very sure that we are offering you a stock which will repeat in a satisfactory degree the success which we have cited.

In July we will pay five per cent. semi-annual dividend. At the end of 1906 our dividends should increase to twenty per cent. per year.

Every dollar received for this stock will be used to increase the business, for we do not need any larger factory or any more machinery.

We are now offering for sale 10,000 shares of this stock.

The price is ten dollars per share, if you pay in installments, or \$9.50 per share cash down. As soon as the first \$100,000.00 is sold the price will at once go to \$12.50 per share.

You can remit or write us for further particulars, or come and see us at 543 Drexel Building.

If you have any friends in Toledo, Ohio, write them and ask about the Talk-O-Phone Company or any of our officers and directors.

The Talk-O-Phone Company does business with the following banks, to whom we take pleasure, by permission, in referring you if you desire to investigate our statements or our business:

The First National Bank, Toledo, O.

The National Bank of Commerce, Toledo, O.

The Broadway Savings Bank, Toledo, O.

The Hamilton National Bank, Chicago, Ill., and

The Bank of California, San Francisco, Cal.

The first \$100,000 is being rapidly sold. Buy it at once before the price goes to \$12.50 per share.

## Haerther, Legg & Company

FISCAL AGENTS FOR THE TALK-O-PHONE COMPANY

547 C Drexel Building, Phila.

*Philadelphia Daily Evening Telegraph  
August 4/06  
Receipts and notes received for shares No. 6*



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FINANCIAL

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# The Talking Machine

## Science's Latest Gift to the People

### Is Making Fortunes as the Telephone Already Has Done

Wealth, sometimes in fabulous amounts, has been made in the past by the pioneer investors in great inventions. Screw stock at 5 cents a share is now worth \$500, oil at 10 cents \$600—telephone bought at \$1 sells for \$1000, while a bicycle tire company on an investment of \$112,000 sold out in 2 years for \$15,000,000.

An established Ohio talking machine Company, with over \$500,000 invested, earning 8 per cent., proposes to double its capital and to make not less than 20 and possibly 100 per cent. profit. Subscriptions have been denied capitalists, and reserved for the people, because every subscriber will become a personal advertiser.

A lifetime income to ward off the rainy day and to sustain in old age.

How many people desire it; how few attain it. Real estate investments are safe, bonds and bank deposits grow, but how slowly at 2 or 3 or even 6 per cent. interest.

The talking machine is now at that point in popularity where the telephone and the telegraph once before stood.

Until the present day opportunity to subscribe to talking machine stock was denied the public, because a chosen few capitalists took it all up and became tremendously rich. How then is it that now the people may have an opportunity?

It is because in the West, at Toledo, Ohio, there is a concern, the Talk-O-Phone Company, which has a plant worth over \$500,000 and a patent on an improvement worth twice as much that must expand, must

double its capital and thereby increase its profits four-fold certainly, twenty-fold probably.

It has not permitted block subscriptions by eager capitalists because it will not allow the control of the business to pass from the present stockholders and because it realizes that if all the people subscribe to stock in small allotments every stockholder will feel a personal interest in the success of the business. He will listen to the Talk-O-Phone and that will mean that he will become a purchaser. Then he will recommend it to his friends, and that will mean increased sales.

Since there is to the stockholders a net profit of \$5 on every machine sold, and since, furthermore, by doubling the \$500,000 present capital there can be produced 750 machines a day, the result is on a \$5 profit \$3750 a day, or \$1,700,000 a year. Here, then, is a profit greater than the entire invested capital, old and new.

Opportunity knocks not twice at the door.

#### A SHORT HISTORY, BUT ONE OF GREAT INTEREST

In January of 1904, the present Company was organized under Ohio laws, with a capital stock of \$200,000.00. In January of 1905 it was found that there was investment in machinery, equipment, patents, salaries and materials \$218,300.14. Such an investment on a capital of \$200,000.00 was a severe strain.

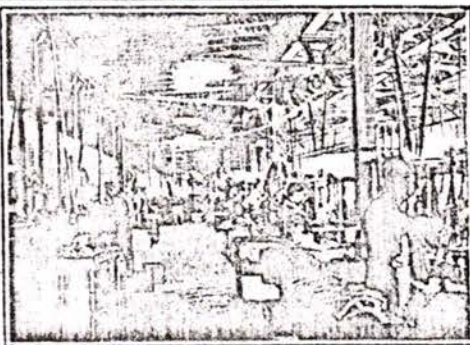
It was decided to increase the capital stock to \$1,000,000.00 by issuing 20,000 shares of non-votable stock at a par value of \$10 per share, and offer this stock for sale to the public.

#### Present and Future Profits.

During the past year this concern earned 8 per cent. on its outstanding stock over and above all interest charges and in addition to all this showed a surplus. As to future profits, when this concern has the additional working capital of \$500,000 and remember this additional capital is wanted only for working capital and not for plant or machinery it will be able to sell in the extremely large quantities which the largest music houses are now requiring, and the factory can be worked to its limit of 750 machines a day. The average profit is \$5 per machine, so that with an output of 750 machines a day this Company would make a profit of \$3,750 per day or \$1,125,000 profit per year. There is no legitimate manufacturing business on earth that can show a more or better percentage of profit than this.

#### The Stockholders Are Secured.

Now does the stockholder in this concern need to fear that future competitors will cut down this rate of profits, as this Company possesses the most valuable vital patents applicable to the modern up-to-date talking machine. In fact, this scale of profits will in all probability be increased for on the cheaper grades of machines the price for 1905 has been advanced 25 per cent. When the directors and stockholders decided to issue the additional stock it was possible that the first 10,000 shares only should be sold at \$10 per share, and after



THE HOME OF THE TALK-O-PHONE, one of the twenty large departments in the factory at Toledo, O., where 200 men are employed and 400 will be.

that the price was to be advanced to \$15.00 per share.

#### Dividends

The directors have decided to pay a semi-annual dividend in July. The money has been appropriated and reserved for this purpose. Another dividend will be declared in January of not less than 5 per cent. (and as the earning capacity of the plant is increasing rapidly) perhaps 10 per cent.

For the convenience of those desiring stock on easy terms, an arrangement has been made whereby any portion of this first 10,000 shares may be bought on the installment plan. \$1 per share to be paid with installation, and \$1 per share per month thereafter for nine months.

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This machine is a superior type of the disc, reproducing and up-to-date in every particular. It is made in various grades and models, ranging in retail price from \$15.00 to \$20.00 each. In addition to all such desirable features as multiple spring to give it long running power and permit winding while in operation; governor control to increase or decrease speed, thereby raising or lowering key, tape run with pressing arm; the Talk-O-Phone also has the MECHANICAL FEED.

The grating, grinding noises of most all disc reproducing machines are eliminated. It is found that the dropping of the needle in order to prevent the machine from running round was the cause of the trouble. To obviate this we invented the MECHANICAL FEED, a device to prevent the needle from running round, thereby eliminating the noise. The result is absolute perfection. That musical sounds are reproduced. There is no buzzy, scratchy noise.



THE TALK-O-PHONE CO., TOLEDO, O.

HAETHER, LEGG & CO., 513 Drexel Building, Phila.

PHYSICAL AGENTS

#### Why You Should Buy This Stock Now

Our January Profits Were Actually \$3,978.53 Net, Which Equals \$107.649.96 Per Annum on Total Stock at First Time of \$200,000—Over 20%.

These 20% Profits Are Assured—A 5% Semi-Annual Dividend Will Be Paid in July, 1905.

100 Per Cent. Profits Probable Capacity of Plant, 750 machines per day.

Average profit per machine \$5.00  
Profit per day \$3,750.00  
Profit per year (\$12 days) \$1,125,000.00  
Total Capital \$1,000,000.00  
Per centage profit 112 per cent.

The decision to pay a 5 per cent. semi-annual dividend in July will further indicate the success of the Talk-O-Phone stock and the number of stockholders are paid out of the profits. If you will observe the figures above you will see clearly how these dividends must be paid from profits and not from new stock, but secured here. This stock can very easily earn 10 per cent. and with such an earning power its value before the end of this year will be \$25 per share.

The entire management is in the hands of a Board of Directors of leading business men who can be counted upon to pay a high and low rate of return on the investment. If you will observe the figures above you will see clearly how these dividends must be paid from profits and not from new stock, but secured here. This stock can very easily earn 10 per cent. and with such an earning power its value before the end of this year will be \$25 per share.

No bank is allowed to manufacture or purchase stock. A letter of reference is sent to every investor, as to the company's credit and standing, and the TALK-O-PHONE COMPANY.

For a Working Reference We Refer to:

The First National Bank, Toledo, O.  
The National Bank of Commerce, Toledo, O.  
The Broadway Savings Bank, Toledo, O.  
The Hamilton National Bank, Chicago, Ill.  
and  
The Bank of California, San Francisco, Cal.  
We will sell it when we do business.



CIRCUIT COURT OF THE UNITED STATES.

SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

vs.

TALK-O-PHONE COMPANY,  
Defendant.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

vs.

LEEDS & CATLIN COMPANY,  
Defendant.

State and County of New York, ss.:

Albert L. Irish, being duly sworn, says:

I am President and Treasurer of the Talk-o-Phone Company and have made a prior affidavit herein, verified April 5, 1906. I have read the affidavit of Robert L. Thomae, which is based, not upon knowledge, but upon alleged information, without stating the sources of the information. The financial standing and character of the Talk-o-Phone Company has been fully set forth in the affidavit of Ensign, but I desire to say that the Talk-o-Phone Company has invested Seven hundred thousand dollars (\$700,000) in its business, and is strong



financially. Thomae's statement that the business of the Company has been conducted for the past few years under several names is untrue. The business of the Company has been conducted solely under the name of the Talk-o-Phone Company, and the stockholders and persons interested in the Talk-o-Phone Company are not those who were interested in any prior company. The Talk-o-Phone Company when incorporated was a new and independent company organized by new and independent interests. The Talk-o-Phone Company, it is true, took over the business of the former Ohio Talking Machine Company. Thomae's statement that the Talk-o-Phone Company manufactures only one type of talking machine is untrue. The different kinds of talking machines manufactured by the Company have already been fully described in the answering affidavits. The Talk-o-Phone Company does not manufacture records of any kind. The statements contained in the advertisements of the Talk-o-Phone Company referred to by Thomae are truthful statements. The business done and to be done by the Talk-o-Phone Company is large and profitable and will continue so to be unless complainants wrongful and threatening statements to the trade are continued. The Talk-o-Phone Company has manufactured and sold talking machines in great numbers and the list of names of the concerns to whom talking machines have been sold by the Talk-o-Phone Company is a truthful list in said advertisements. What relevancy all this has to the issues involved in these suits I am unable to see. The obvious purpose of Thomae is to attempt to prejudice the Talk-o-Phone Company by reason of statements made without knowledge or reliable information. Thomae's statement that the mechanical feed Talk-o-Phones are gotten up merely as an attempt to evade the patent in suit and that the mechanical feed performs no



function, is clearly untrue. This matter has been fully discussed in defendants' answering affidavits.

The Talk-o-Phone Company has no connection whatever with the Leeds & Catlin Company and has purchased no records or other goods from the Leeds & Catlin Company for the last nine months at least. During the past nine months the Talk-o-Phone Company has purchased no records from any concern for sale, but has devoted itself solely in the manufacture and sale of talking machines. No one interested in the Talk-o-Phone Company is interested in the Leeds & Catlin Company, and no one interested in the Leeds & Catlin Company is interested in the Talk-o-Phone Company, and no person is employed by the Talk-o-Phone Company who acts for both companies. The two companies are entirely independent, separate and distinct. As stated in the annexed affidavit of Mr. Leeds the connection of Mr. Leeds with the Talk-o-Phone Company at the time of the organization of the Talk-o-Phone Company was merely nominal and continued for a month or so until the permanent organization of the Company was effected. I fail to find in the moving affidavits upon either of these motions any proof of title in the complainants to the patent in suit.

ALBERT L. IRISH.

Subscribed and sworn to before me }  
this 13th day of April, 1906. }

T. P. Dalton,

[NOTARY'S SEAL.]

Notary Public,

Kings County.

Certificate filed in New York County.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

vs.

TALK-O-PHONE COMPANY,  
Defendant.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

vs.

LEEDS & CATLIN COMPANY,  
Defendant.

State and County of New York, ss.

Edward F. Leeds, being duly sworn, says:

I am President of the Leeds & Catlin Company and have heretofore made two affidavits herein, each verified April 5, 1906. I have read the affidavit of R. L. Thomae and do not understand the relevancy of his statements to the issues involved in either of the above entitled suits. Thomae's attempt to lead the Court into the belief that some connection exists between the Talk-o-Phone Company and the Leeds & Catlin Company is most surprising, since I believe that not only Thomae but counsel for complainants know fully that no connection whatever exists between the Talk-o-Phone Company and the Leeds & Catlin Company. The Leeds & Catlin Company has not sold records to the Talk-o-Phone Company for nearly a year last past, and, as already stated, the Leeds & Catlin Company never purchased machines from the Talk-



o-Phone Company except a few which it took in part settlement of an account. No one interested in the Leeds & Catlin Company is interested in the Talk-o-Phone Company, and no one interested in the Talk-o-Phone Company is interested in the Leeds & Catlin Company, and neither company has any interest in the other company and no person employed by or acting for the one company is employed by or acts for the other company. At the time of the organization of the Talk-o-Phone Company in January, 1904, I was requested to become President of that company, by reason of my long experience in the talking machine business, but this I was unwilling to accede to. However, I was elected President of the company, notwithstanding my protests and I sent in my resignation shortly thereafter. I never paid for any stock in the Talk-o-Phone Company and never saw any stock of the Talk-o-Phone Company issued to me, and never had any stock of the Talk-o-Phone Company issued to me in my possession and I do not now own or hold any stock or interest whatever in the Talk-o-Phone Company. If the Talk-o-Phone Company issued any stock to me for the purpose of having me elected President, the same stock was never turned over to me and was merely a formal transaction of which I have no knowledge. The Court should understand that the Leeds & Catlin Company and the Talk-o-Phone Company absolutely and unconditionally represent different interests in no way connected. I fail to find in the moving affidavits upon either of these motions any proof of title in the complainants to the patent in suit.

E. F. LEEDS.

Subscribed and sworn to before me }  
this 13th day of April, 1906. }

E. K. Van Beuren,

[NOTARY'S SEAL.] Notary Public.

Kings County.

Certificate filed in New York County.



**Affidavit.**

City of Washington, }  
District of Columbia, } ss.:

Joseph Lyons, being duly sworn, deposes and says: I am and have been a solicitor for patents for many years past, and in that capacity I have, in behalf of Emile Berliner, of Washington, D. C., prepared and filed an application for Letters Patent of the Dominion of Canada, for an improvement in "Gramophone," and the papers hereto annexed are a true copy of the application, petition, oath, specification and drawing as prepared and filed by me with the Commissioner of Patents at Ottawa, Canada, on December 7th, 1895, with the exception of the dates and signatures, which are left blank in the copy hereto annexed. The official filing receipt for said application is also hereto annexed. The application above referred to was never amended or changed in any way or manner prior to the grant of the patent. The patent was granted under No. 55079, on February 24, 1897, and was delivered to me and by me to the said Emile Berliner.

The Canadian Patent No. 55079 was intended to have, and I believe has the same specification and drawing as the U. S. Patent to Emile Berliner, No. 534543, granted February 19, 1895.

I am informed and believe that the original document is now in Canada.

JOSEPH LYONS.

Sworn to and subscribed before me }  
this 12th day of April, 1906. }

[NOTARY'S SEAL] Edwin S. Clarkson,  
Notary Public,  
D. C.



All communications should be addressed to the Commissioner of Patents, Ottawa. When writing on this subject refer to No. 71661. Circular No. 1.

Department of Agriculture, Patent Office, Ottawa, Canada, 9th December, 1895.

Sir:

I have the honor to acknowledge receipt on the 7th instant of the Petition, Oath, Specification & Drawings applying for a Patent in favor of E. Berliner for "Gramopones," also the sum of Twenty dollars and to inform you that the papers have been filed and will meet with due attention, as soon as 3d copy of claims shall have been received by this office.

I have the honor to be, Sir, your obedient servant,  
R. Pope, Deputy Commissioner of Patents.  
To J. Lyons, Esq., Washington, D. C.

### Petition.

To the Commissioner of Patents, Ottawa:

The petition of Emile Berliner, of the City of Washington, in the District of Columbia, United States of America, electrician, sheweth;

That he has invented new and useful improvements in Gramophones not known or used by others before his invention thereof, and not being in public use or on sale, with his consent or allowance as such inventor for more than one year previous to his application for a patent in Canada.

Your petitioner therefore prays that a Patent may be granted to him for the said invention, as set forth in the specification in duplicate relating thereto, and, for the purposes of the Patent Act, your petitioner elects his domicile in the City of Ottawa, Province of Ontario.

And your petitioner hereby appoints Joseph



382 316

Oath and Specification.

Lyons of No. 1003 F. Street, North West, Washington, D. C., U. S. A. his attorney, with full power of substitution and revocation, to prosecute this application, to sign the drawings, to receive the patent and to transact all business in the Patent Office connected therewith.

Signed at Washington, D. C., this  
day of 1895.

In the presence of

Oath.

City of Washington, }  
District of Columbia, } ss.:

I, Emile Berliner, of the City of Washington, in the District of Columbia, United States of America, electrician, make oath and say, that I verily believe that I am the inventor of the new and useful improvements on gramophones, described and claimed in the specification in duplicate relating thereto and for which I solicit a patent by my petition dated day of 1895. And I further say that the several allegations contained in the said petition are respectively true and correct.

Sworn before me at the City of Washington,  
D. C., U. S. A., this day of , 1895.



Oath and Specification.

332-317

**Specification.**

To all whom it may concern:

Be it known that I, Emile Berliner, of the City of Washington, District of Columbia, United States of America, electrician, have invented certain new and useful improvements in gramophones, and I do hereby declare that the following is a full, clear and exact description of the same.

Reference is made to the accompanying drawing in which:

(Note: See stipulation, p. ~~34~~ Paragraph Third, as to the balance of this Canadian patent down to and including the signature "Emile Berliner." The Exhibit after the said signature concludes with the words set forth below.)

Washington, D. C.,  
November , 1895.

Signed in the presence of



UNITED STATES CIRCUIT COURT,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*

VS.

TALK-O-PHONE COMPANY.

THE SAME

VS.

LEEDS & CATLIN COMPANY.

**On Motion for Preliminary Injunctions.**

TOWNSEND, C. J.:

The bills allege infringement of claims 5 and 35 of the Berliner Patent, No. 534543. The Circuit Court for the Southern District of New York in the suit of this complainant against the American Graphophone Company, after an exhaustive discussion of the issues presented sustained said claims and its decree was affirmed by the Court of Appeals on March 1st, 1906, after elaborate argument by able counsel and upon voluminous briefs in which apparently every material defence was presented and discussed.

The case on this motion is presented by some five hundred pages of affidavits and briefs; "Defendants' Exhibit Letters Patent" is a book of some 135 pages.

It appears that the machines of these defendants



are practically identical with those found to infringe in the former suit. These defendants, however, have set up twelve defences claimed either to consist of new matter not before the Court on the former hearing, or to relate to matters which, while in the record at the former hearing were not considered or discussed. The Court is urged to dispose of these questions at the earliest possible moment in view of the great financial interests involved, and the advertisements and circulars issued by the respective parties relating to the patent in suit and the machines claimed to infringe, and of the serious damage involved whether a preliminary injunction be granted or denied.

The new defences are founded, *inter alia*, on the contentions that the patent in suit has expired by reason of the expiration of prior Berliner, German, French and English patents and a Berliner-Suess Canadian patent; by reason of Berliner's abandonment of his invention in view of said Berliner-Suess patent; that Berliner was anticipated by an Edison patent; that in the former suit the Berliner patent was not fairly in controversy; that complainant has been guilty of laches, and that defendants do not infringe in view of the prior art and especially of certain prior Berliner patents.

The first and second defences rest upon prior Berliner German Patent No. 53622 and French Patent No. 207090. It is claimed that the Berliner patent in suit covers improvements in details of construction upon the Gramophone described and claimed in earlier patents, because his broad invention had been disclosed therein and especially in 372786 not before the Court in the original suit, and that these details were covered by said prior foreign patents; that the invention in suit are identical with those of the foreign patents, and that as they expired prior to the commencement of this



suit, the patent in suit expired at the same time under the settled rule.

Bate Refrig. Co. vs. Sulzberger, 157 U. S., 1.

Siemens vs. Sellers, 123 U. S., 276.

It is claimed that the language of the specifications of the patent in suit supports this view where the patentee says that "one feature of my invention has reference to the method of recording sound" etc., and "the other features of my invention have reference to the construction of the details of both the recorder and the reproducer of the Gramophone," and that while he illustrated his reproducing apparatus as a whole he does not state that it is his invention.

It is claimed further that unless the claims in suit are limited to certain improvements in details they are anticipated by Edison and Sness.

It is argued that the patent in suit expired prior to the commencement of this suit by reason of the expiration of said prior Berliner German and French patents. The drawings of the German patent are substantially identical with Figures 6 and 7 of the patent in suit and the specifications describe and the claims cover these constructions. The same is true, (barring the claims which are immaterial) of said French patent.

The German patent being a patent of addition to prior Patent No. 45046 expired with the expiration thereof on November 7, 1902. The French patent expired July 19, 1905.

The French patent and the claims of the German patent cover improvements in details of the construction of Berliner's recorder and reproducer.

It is claimed by complainant that these details differ in construction and operation from those shown in the patent in suit and covered by claims not in issue, but this question can only be deter-



mined by expert testimony and this point does not appear to be material in the determination of the issue herein.

The issue here presented, assuming the details to be substantially identical, is whether the prior patenting in a foreign country of a minor part of a broad or basic invention, such as that covered by the claims in suit, so affects the whole that the expiration of a foreign patent terminates the whole of a United States patent which includes both the minor parts and the broad main invention. The Circuit Court and the Circuit Court of Appeals in the original suit held that the claims in suit covered the broad invention.

The claims in suit are as follows:

"5. The method of reproducing sounds from a record of the same which consists in vibrating a stylus and propelling the same along the record by and in accordance with the said record, substantially as described.  
35. In a sound reproducing apparatus consisting of a traveling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described."

The statute provides as follows:

"Section 4887. No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented in a foreign country, unless the same has been introduced into public use in the United States for more than two years prior to the application. But every patent granted for an invention which has been previously



patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years."

The test in each case, under the statutes, is whether the inventions are identical, as is said by the Supreme Court in *Commercial Mfg. Co. vs. Fairbanks Co.*, 135 U. S., 176-194.

"A fair test of the question as to whether the American patent is anticipated by the foreign patents, or is included in them, we think would be; were a person in this country, after the issue of the present American patent, to commence the manufacture of oleo-margarine by the precise process described in the Bavarian or Austrian patents, supposing that process had not been patented abroad, would the courts refuse an injunction to restrain the use of the process on the ground that it infringed that covered by the American patent? We can hardly deem it possible that any intelligent court would deny an injunction if applied for under such circumstances, and we think this fairly illustrates the relation of the foreign to the American patent."

The cases cited do not satisfactorily settle this question or at most do not seem to support defendants' contention. Thus in *Siemens v. Sellers*, 123 U. S., 276, the Supreme Court held that the American patent expired with the foreign patent, saying that "the principal invention is in both, and if the American patent contains improvements this fact cannot save the patent from the operation of the law which is invoked."



In *Western Electric Co., vs. Citizens' Tel. Co.*, 106 F. R., 215, the Court said as follows:

"But, what is more directly to the point, the essence of the patent in suit contained in the first claim thereof, namely, the cutting out of the annunciator from the circuit employed for conversation, is embodied in the description of the invention in the foreign patents. The construction given in the specifications necessarily involves it. The case is, therefore, brought under the operation of the rule laid down in *Siemens' Admr. vs. Sellers*, 123 U. S., 276, 8 Sup. Ct., 117, 31 L. Ed. 153, even though it be conceded that there are differences in some details between the foreign and the home patents upon which independent claims might be based."

I fail to find in the numerous cases cited by counsel any authority for the proposition advanced by defendant that if an article made according to the description of the prior foreign patent would infringe any claim of the American patent no matter how insignificant, then the two patents are for the same invention and the American patent expires *in toto* with the prior foreign patent. In fact the interpretation placed by the Courts upon the decision of the Supreme Court in *Siemens vs. Sellers*, *supra*, seems to be that the test is whether the principal invention of the domestic patent is found in the prior foreign patent.

I think, from such brief examination as I have been able to give the authorities cited that the rule contended for by the defendant does not apply to cases where the foreign patents which have expired do not cover the broad claims for the basic invention.

It is next contended that the patent in suit expired at the same time with certain other Berliner



German and French patents and an English patent, because those patents cover the invention of Berliner's United States Patent No. 564586. But an examination of the drawings of the prior British patent shows that there is omitted therefrom the Figure 10 of the United States Patent No. 564586, which was the only figure illustrating the form of the device covered by the claims here in suit.

There is nothing either in the specifications or drawings of the said British patent which describes, illustrates or shows the method or apparatus of the claims here in suit. These considerations apply equally to said earlier German and French patents.

The fourth, fifth and sixth defences are founded upon a Canadian patent (No. 41901) to Berliner as assignee of Suess, upon which defendant lays great stress. This patent discloses and broadly claims the invention covered by the claims here in suit. It is contended that thereby Berliner admitted that Suess was the inventor of the reproducing apparatus in suit; that by Berliner's application as assignee of Suess he abandoned the broad claims in suit, and that as the said Canadian patent covered said broad invention and expired in 1899, the patent in suit expired with it.

The evidence introduced in the original suit showed and the Court found on the Suess Patent 427279 that Suess was merely an improver of a particular form of swinging arm device and some of the language used in the specifications of this Suess Canadian patent, which, however, was not before the Court in the original suit, seems to indicate that its structure is merely an improvement on the broad Berliner invention, and Berliner himself afterwards applied for and obtained a Canadian patent for the broad invention covered by the claims here in suit.



But the Canadian patent in terms describes and claims the broad generic invention of Berliner covered by the claims here in suit, as will be seen from the following claims:

"5. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism consisting of a sound conveying tube and a diaphragm and stylus mounted at one end of the tube; of a freely swinging supporting frame for the said reproducer mechanism, substantially as described.

"7. In an apparatus for reproducing sounds from a record tablet, the combination with a reproducer mechanism consisting of a sound conveyer, and a diaphragm and stylus mounted at one end thereof; of a supporting frame for the said reproducer, loosely pivoted to swing freely both laterally and vertically, substantially as described.

"11. In an apparatus for reproducing sounds from a rotating record-tablet, a reproducing stylus mounted to have a free movement over the surface of the record tablet, substantially as described."

I think, therefore, that if this patent expired as claimed in 1899 the patent in suit expired at the same time, upon the authority of the decisions cited above.

It is contended by complainant, however, that the Canadian patent did not then expire because it was granted for a term of eighteen years from its date, namely, from February 11, 1893. The grant of the patent is for "The period of eighteen years from the date \* \* \* subject to the conditions in the Acts" of Canada. The patent grant further provides as follows:

"The partial fee required for the term of



six years having been paid to the Commissioner of Patents, this patent shall cease at the end of six years from date unless at or before the expiration of the said term the holder thereof pay the fee required for the further term or terms as provided by law."

The rule in such cases as I understand it is that the duration of the United States patent is limited by the duration of the legal term of the foreign patent and that it is not limited by any lapse or forfeiture of any portion of said term by means of any condition subsequent.

Pohl vs. Brewing Co., 134 U. S., 386.

In Bate Refrig. Co. vs. Sulzburger, 157 U. S., 508, the Supreme Court says as follows:

"But the American patent will be granted upon the condition that, if you obtain the foreign patent first, your invention shall be free to the American people whenever, by reason of the expiration of the foreign patent, it becomes free to the people abroad."

In Bonsack Machine Co. vs. Smith, 70 F. R., 383, the Court construing the decisions held that the question in every case was when does the foreign patent expire looking to its language when issued. Applying this test here I conclude with some hesitation that as the term fixed in the grant was for eighteen years, at the time when the United States patent in suit was issued, the latter does not lapse at the end of six years because of the failure of the patentee after the United States patent had issued, to pay the fee for a further term of six years. This conclusion seems to accord with that reached by the Circuit Court of Appeals for this Circuit in Welshbach vs. Appollo, 96 F. R., 332. In any event, for reasons hercafter stated, I have concluded to



resolve the doubt raised on this point in favor of the complainant.

The defence founded on the prior Edison patent will not be discussed because said patent was before the Court in the original suit. The contention that by reason of a certain contract between the parties "the prior suit was not \* \* \* a suit in which the Berliner patent in suit \* \* \* was fairly in controversy" is not deserving of notice. The contract and the relations of the parties were fully before the Court and the record and briefs in said case are a sufficient answer to any such contention.

The other defences of laches and non-infringement need not be considered.

I have given all of my time available during the past ten days to the examination of the various questions presented on this motion and have reached the conclusion that, except as to the Suess Canadian Patent No. 41901 the defendants have failed to introduce any new matter which would in my judgment have led the Courts to reach a different conclusion if it had been before them in the original suit. But even if I am mistaken in this view, and if the expiration of the Suess Canadian patent is a complete defence or if a decision of the questions raised as to the character and scope of the various patents now introduced for the first time should be postponed until final hearing, yet I am constrained to grant the injunction in order to permit an appeal and a determination of the questions at the earliest possible moment.

The motion for a preliminary injunction is granted with leave to defendants to move for a stay pending the decision of these questions by the Circuit Court of Appeals.



328 Decree for Preliminary Injunction.

At a stated term of the Circuit Court of the United States for the Southern District of New York, held in the Court room thereof in Post Office Building, in the Borough of Manhattan and City of New York, this 2<sup>nd</sup> day of May, 1906.

Present—Hon. WM. K. TOWNSEND,  
U. S. Circuit Judge.

VICTOR TALKING MACHINE COM-  
PANY and United States Gram-  
ophone Company,  
Complainants,

vs.

*Leeds & Catlin*  
TALKING PHONE COMPANY,  
Defendant.

Decree for Prelim-  
inary Injunction.

In Equity, No.  
~~8859~~ 8797.

On Patent No.  
534,543.

Complainants' motion for preliminary injunction having come on to be heard before me on April 6, 1906, and the argument having been opened and then adjourned to April 13, 1906, at the request of complainants to afford to complainants' counsel an opportunity to examine and consider the affidavits and exhibits offered on behalf of defendant, and the said motion having been argued before me on April 13, 1906, by Horace Pettit, counsel for complainants, and Louis Hicks, counsel for defendant; due deliberation having been had,

Upon the affidavits and exhibits filed on behalf of the complainants, including Canadian Patent No. 550,550 offered by complainants in rebuttal on April 13, 1906, and upon the affidavits and exhibits filed on behalf of the defendant, it is

*WTR 55,479*  
*27*



329

Decree for Preliminary Injunction.

ORDERED: That a Writ of Preliminary Injunction issue in this cause, restraining the defendant, the Leads & Catlin Company, its associates, servants, clerks, agents and workmen, and each and every one of them, from manufacturing, using, or selling, until further order of this Court, sound reproducing apparatus or devices embodying the subject-matter of claim 35, of the letters patent in suit, which claim reads as follows, namely:-

"35. In a sound reproducing apparatus consisting of a travelling tablet having a sound record formed thereon and a reproducing stylus shaped for engagement with said record and free to be vibrated and propelled by the same, substantially as described"

and from manufacturing, using or selling or in anyway disposing of apparatus or devices which embody the method specified in claim 5 of letters patent in suit, which claim reads as follows, namely:-

"5. The method of reproducing sounds from a record of the same which consists in vibrating a stylus and propelling the same along the record by and in accordance with the said record, substantially as described",

and from using or employing in any way the method specified in said claim 5.

W. K. TOWNSEND,

United States Circuit Judge

*Filed May 2-1906*



949,330

Order for Stay.

UNITED STATES CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK.

In Equity Case No. ~~8830~~ 8797.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,  
Complainants,

VS.

*Leslie S. Ogden*  
THE TALK-O-PHONE COMPANY.  
Defendant.

Ordered, this second day of May, 1906, that the writ of preliminary injunction granted by decree of even date be stayed pending the decision of the Court of Appeals, provided an appeal from said decree be promptly perfected; provided further that the defendant enter security in the sum of Ten thousand dollars (\$10,000) to indemnify the complainants for damages and profits due to infringement accruing during the period of said stay, said security to be approved by the Clerk of the Court, and to be entered within ten days from date, otherwise preliminary injunction to issue.

W. K. TOWNSEND,  
United States Circuit Judge.

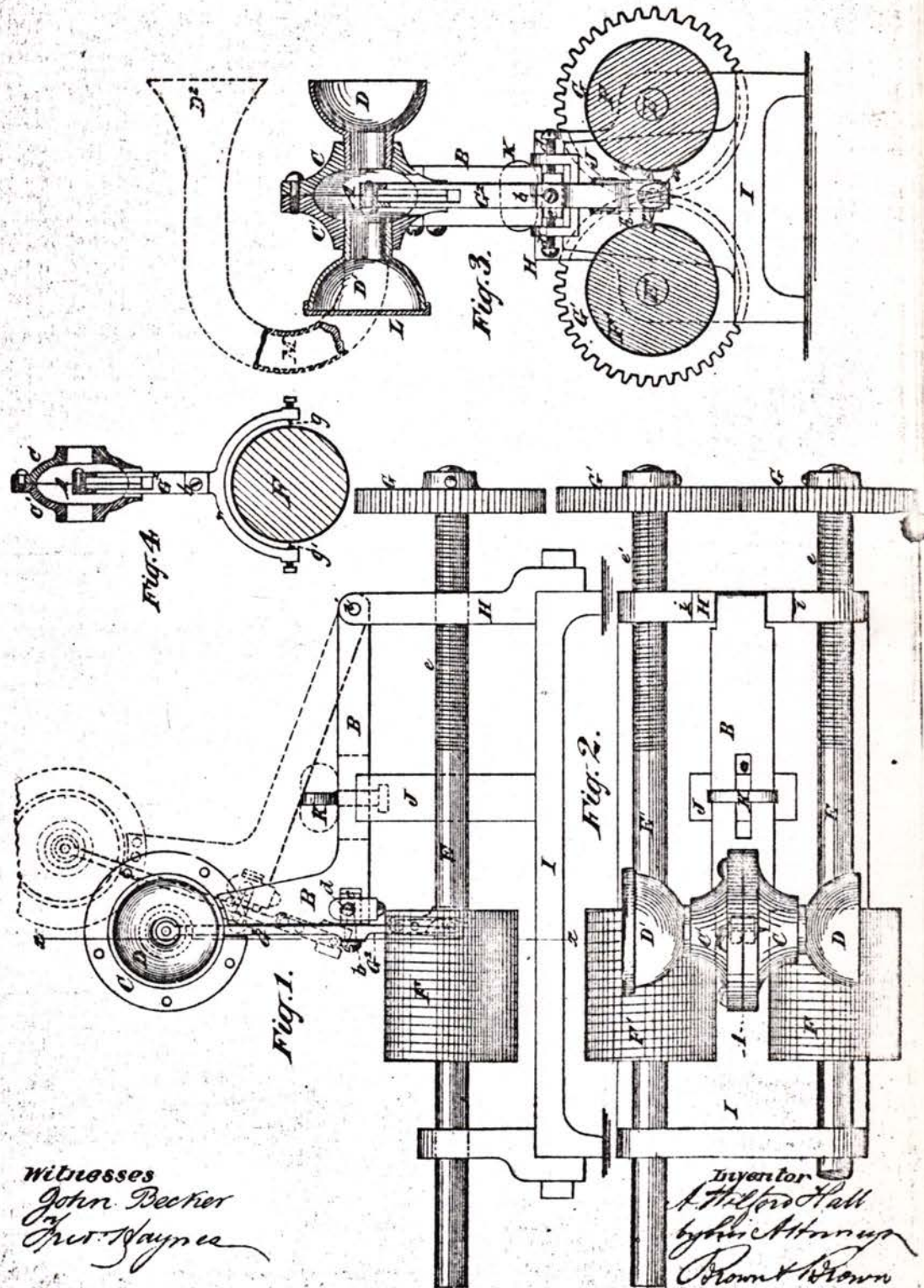
Filed May 2, 1906.



A. W. HALL.  
Phonograph.

No. 219,939.

Patented Sept. 23, 1879.



Witnesses  
John Beecher  
J. W. Haynes

Inventor  
A. W. Hall  
by  
Brown & Brown

THE NORMAN PATENT CO. PHOTO-LITHO. N. Y.



# UNITED STATES PATENT OFFICE.

A. WILFORD HALL, OF NEW YORK, N. Y.

## IMPROVEMENT IN PHONOGRAPHS.

Specification forming part of Letters Patent No. 219,529, dated September 23, 1879; application filed November 29, 1878.

### To all whom it may concern:

Be it known that I, A. WILFORD HALL, of the city, county, and State of New York, have invented certain new and useful Improvements in Phonographs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention consists in certain improvements in the phonograph which is the subject of Letters Patent No. 200,521, dated February 19, 1878, to Thomas A. Edison. In that instrument, as described by the patentee in the specification of his said Letters Patent, the sound-recording indentations or impressions produced on the tin-foil or yielding material are obtained by a single point and from one side only of the vibrating diaphragm, which is actuated by the sounds to be reproduced, and a single record only of the sounds is made, the indentations in such record being produced by the vibrations of the diaphragm in one direction only. Moreover, the vibration of the diaphragm is more or less restricted in consequence of the method of adjustment described in said Letters Patent, such adjustment having the effect of bringing a lateral tension on the diaphragm in one direction when the instrument is in its normal condition or at rest.

The objects of my invention are to provide for a more free vibration of the diaphragm, and to more fully utilize the vibrations of the diaphragm in both directions, both in the recording and in the reproduction of sounds, whereby I believe that several important advantages may be obtained, as will be hereinafter explained.

My invention consists, principally, in the combination, with the sound-recording or sound-reproducing diaphragm, of two points and one or more moving surfaces of yielding material, suitably arranged in connection with said points, whereby a divided record of the vibrations of the diaphragm is obtained and a double action is produced on the diaphragm for the reproduction of the sound—that is to say, in obtaining the record, one half is obtained from one point and from one side of the diaphragm by the vibrations of the diaphragm in one direction, and the other half is obtained from the other point and from the

other side of the diaphragm by the vibrations of the diaphragm in the opposite direction; and in the reproduction of the sound the vibrations of the diaphragm in one direction are produced from one half of the record, and those in the other direction from the other half of the record. By this means less depth of penetration of the points is required than when the record is made by a single point, and, as it is not necessary to put the diaphragm under a normal lateral tension in one direction, the diaphragm will vibrate in response to less atmospheric disturbance than when a single point and recording-surface are employed.

My invention further consists in the combination, with the diaphragm of a phonograph, of two mouth-pieces, one on each side thereof, whereby several important advantages are obtained, as will be hereinafter fully explained.

My invention also consists in several improvements of the details of construction of the instrument, as will be hereinafter fully specified.

Figure 1 in the accompanying drawing is a side view of a phonograph with my improvements. Fig. 2 is a plan of the same. Fig. 3 is a vertical section of the same in the plane indicated by the line  $x-x$  of Fig. 1.

A is the diaphragm, which may be in any way suitably supported, but is represented as clamped between two internally-concave disks, C C', which are supported by a standard, B, and which are represented as fitted with separate tubes and mouth-pieces D D', one on each side of the diaphragm. A cap, L, is provided to fit and close either mouth-piece. It is shown in Fig. 3, placed on the mouth-piece D'.

E E' are two shafts arranged in suitable bearings below and parallel with the diaphragm, and carrying the two cylinders F F', upon which are to be secured the tin-foil or other yielding material upon which the record of the diaphragm is to be obtained. The said shafts have provided upon them screw-threads  $e e'$ , and one of the fixed bearings provided for each is provided with a corresponding female screw-thread, so that as the said shafts rotate they also have a longitudinal movement imparted to them by the act of rotation.

The said shafts are represented as geared together by gearing G G', to rotate at similar speeds but in opposite directions, and in order



that both shafts and cylinders may have corresponding longitudinal movements, one has a right-hand and the other a left-hand screw-thread.

The cylinders  $F F'$  have each a helical groove provided in it of a pitch corresponding with the screw-threads on its respective shaft.

Between the diaphragm  $A$  and the cylinders  $F F'$  there is attached to the standard  $B$  a lever,  $G^1$ , the upper part of which is forked in such manner and shape, as shown in Fig. 3, as to pass through openings provided in the disks  $O O'$ , and embrace the diaphragm between the two limbs of its fork, which are so shaped as to clamp or bear upon opposite sides of the diaphragm near its center only, leaving the rest of the diaphragm free to vibrate under the influence of the sound-waves.

The lower part of the said lever is furnished with two points,  $g g'$ , which are so situated between or relatively to the two cylinders  $F F'$  that one is capable of touching the tin-foil or other yielding material on one cylinder, while the other is capable of touching that on the other cylinder.

The said points are attached to the lever by means of elastic carriers  $h h'$ , or otherwise, in such manner as to be capable of adjustment to the requisite distance apart by means of a cam or eccentric,  $a$ , (see Fig. 3,) or other equivalent device attached to the lever for the purpose.

The fulcrum  $b$  of the lever is made adjustable in the standard  $B$  by being secured in a sliding block,  $c$ , which can be moved upon the standard in one direction or the other by means of adjusting-screws  $d, d'$  for the purpose of setting the lever, so that when the diaphragm and lever are at rest, and the points  $g g'$  are at the proper distance apart, the said points may both just touch or press equally upon the yielding material on the two cylinders.

In order to provide for the removal of the lever and points from between the cylinders when it is desired to move the cylinders without producing any marks upon the yielding surfaces thereon, or when it is requisite to place, remove, or replace the tin-foil or other yielding material upon the cylinders, the standard  $B$ , upon which the diaphragm and lever are mounted, is pivoted at  $i$  to a stand,  $H$ , erected upon the supporting-base  $I$  of the instrument, so that the said standard, with the diaphragm and lever, can all be raised, as shown in dotted outlines in Fig. 1.

When the diaphragm and lever are in the operative position shown in Fig. 3, and in full outline in Fig. 1, the standard  $B$  rests upon a post,  $J$ , where it is then held down firmly by a button or set-screw,  $K$ .

The operation of the instrument in recording is as follows: The tin-foil or other yielding material upon which the record is to be obtained having been secured upon the cylinders, and the standard having been brought down and secured upon the post to bring the points  $g g'$  between the two cylinders, and

the cylinders having been so adjusted lengthwise, or the points so adjusted lengthwise, of the cylinders that one of the points is opposite to a groove in one cylinder and the other opposite to a groove in the other cylinder, the points are then adjusted so that each presses very slightly upon the foil or other material on one of the cylinders, and the shafts  $E E'$  and cylinders  $F F'$  are then set in motion by the clock-work or other motor provided for the purpose.

Either mouth-piece may be used; but the other one should be covered by the cap  $L$ , to prevent the neutralizing effect of air-waves passing around and acting upon the opposite side of the diaphragm to that which faces the open mouth-piece. Words spoken into the open mouth-piece then cause the diaphragm to vibrate, and the movements will be transmitted through the lever to the pins, and the vibrations will thereby be recorded by indentations in the foil or yielding material, one half of the record being obtained upon the material on one cylinder and the other half by indentations in the material on the other cylinder, each half of the record thus produced being the exact counterpart of the other half—that is to say, the indentations produced on the material on one cylinder being opposite the ridges left between the indentations of the material on the other.

The sound may be reproduced from either side of the diaphragm; but both sides may be utilized, and in order to provide for utilizing both sides the mouth-piece  $D$  or  $D'$  may be removed, and have a bent tube,  $M$ , and mouth-piece  $D''$  substituted for it, as shown in dotted outline in Fig. 3, so that the sound-waves produced on both sides of the diaphragm may be conducted in one direction.

In the operation of reproducing the sound, the vibration or movement of the diaphragm in one direction is produced by the half-record on one cylinder, and the vibration or movement in the other direction by the half-record on the other cylinder. The movements in both directions being produced in a positive manner with a velocity exactly proportioned to the velocity of the movements of the cylinders.

It is not absolutely necessary to employ two cylinders to produce the double or divided record. I have shown in the diagram Fig. 4 a construction of the lever and points whereby a single cylinder may be used, the lower end of the lever, to which the points  $g g'$  are attached, being forked to go straddle or embrace the said cylinder that one point may act against or be acted upon by one side of the cylinder and the other point act against or be acted upon by the other side of the cylinder. In such case the cylinder should contain two helical grooves, the turns of each intervening between those of the other, and one of the points being arranged to press or touch the foil or other surface which is to receive the record opposite one of the said grooves, and the other to press or touch it opposite the other of said



grooves, so that the double or divided record may be produced on the one surface, but in distinct lines of indentations.

I have hereinbefore briefly alluded to some of the advantages resulting from this duplex system of recording and reproducing the vibrations of the diaphragm, but will now explain others of these advantages.

With a single point and a record produced from one side of the diaphragm only, the diaphragm in the reproduction of the sound can only be moved in one direction by the motion of the indented surface, swinging back in the other direction by its own normal vibration, and with a velocity only equal to its own vibrational number, which of course depends on its size, weight, and rigidity. Hence if the rotation of the cylinder should vary in speed from this normal vibrational rate, as it necessarily must do in producing tones of various degrees of pitch, it follows that a constant irregularity must occur between the rates of diaphragmatic vibrations in the two opposite directions, and this is what I believe to be the cause of the nasal intonation noticed in the single-acting instrument; but I believe that with the duplex system this defect will be remedied, as the two opposite indented surfaces driving the diaphragm positively with equal velocity in either direction in perfect alternation should reproduce the spoken words with the same intonation which formed the record.

The employment of the lever between the diaphragm and the recording-surfaces, besides obtaining the advantages hereinbefore mentioned, enables the diaphragm to be brought to a position above or out of the way of the recording part of the apparatus, and so enables both of its sides to be made available, as hereinbefore described, for reproducing the spoken words or sounds, thereby making the reproduction much louder than when the sonorous effect is produced from one side of the diaphragm only, as is unavoidable when the recording-point is arranged directly opposite to the diaphragm. Moreover, it is by placing the diaphragm in this position, out of the way of the recording apparatus, and permitting the tube or mouth-piece on one side of the diaphragm to be closed, that I prevent the neutralizing, hereinbefore mentioned, of sound-waves acting on the opposite side of the diaphragm to that against which a speaker's voice is directed.

By providing for the use of two mouth-pieces, one on each side of the diaphragm, and connecting them by tubes of suitable length with the diaphragm, two persons seated on opposite sides of the instrument may carry on a rapid and uninterrupted conversation.

Although the greatest advantages resulting from the use of a lever between the diaphragm and the recording-surface are obtained by the use of two points giving a duplex or di-

vided record, the advantage of leverage between the diaphragm and the recording-point would be considerable with a single point giving a single or undivided record.

I do not herein claim the combination, in a phonograph, of a diaphragm, a point, and a lever intervening between the diaphragm and the point.

What I claim as my invention is—

1. The combination, with the diaphragm of a phonograph, of two points connected with said diaphragm, and one or more moving surfaces adapted to be acted upon by or to act upon said points, substantially as herein described, whereby a duplex or divided record of the sound-vibrations is obtained or employed, substantially as herein set forth.

2. The combination, with the diaphragm of a phonograph, of two recording-surfaces, or surfaces having marks thereon corresponding with sound-vibrations, a lever connected with the diaphragm and having attached to it two points adapted one to operate upon or be operated upon by one of said surfaces, and the other to operate upon or be operated upon by the other of said surfaces, for the purpose of obtaining or employing a duplex or divided record, substantially as herein described.

3. The combination, with the diaphragm of a phonograph, of two cylinders adapted to carry yielding recording-surfaces, or surfaces having marks thereon corresponding with sound-vibrations, and a lever connected with said diaphragm and carrying two points, one of which is arranged to operate upon or be operated upon by the surface on one of said cylinders, and the other of which is arranged to operate upon or be operated upon by the surface on the other of said cylinders, substantially as and for the purpose herein set forth.

4. The combination, with the diaphragm of a phonograph, of two tubes and mouth-pieces, one on each side of the diaphragm, substantially as and for the purpose herein specified.

5. The combination, with the diaphragm of a phonograph and two mouth-pieces, one on each side thereof, of a cap adapted to fit and close either of said mouth-pieces, substantially as and for the purpose herein described.

6. The combination, with the diaphragm of a phonograph, of a mouth-piece communicating directly with one side of the diaphragm, and a bent tube communicating with the other side of the diaphragm and furnished with a mouth-piece presenting its opening in the same direction as the said directly-communicating mouth-piece, substantially as and for the purpose herein specified.

A. WILFORD HALL.

Witnesses:

FRED. HAYNES,  
T. J. KEANE.



446

(No Model.)

2 Sheets—Sheet 1.

W. SUESS.  
GRAMOPHONE.

No. 427,279.

Patented May 6, 1890.

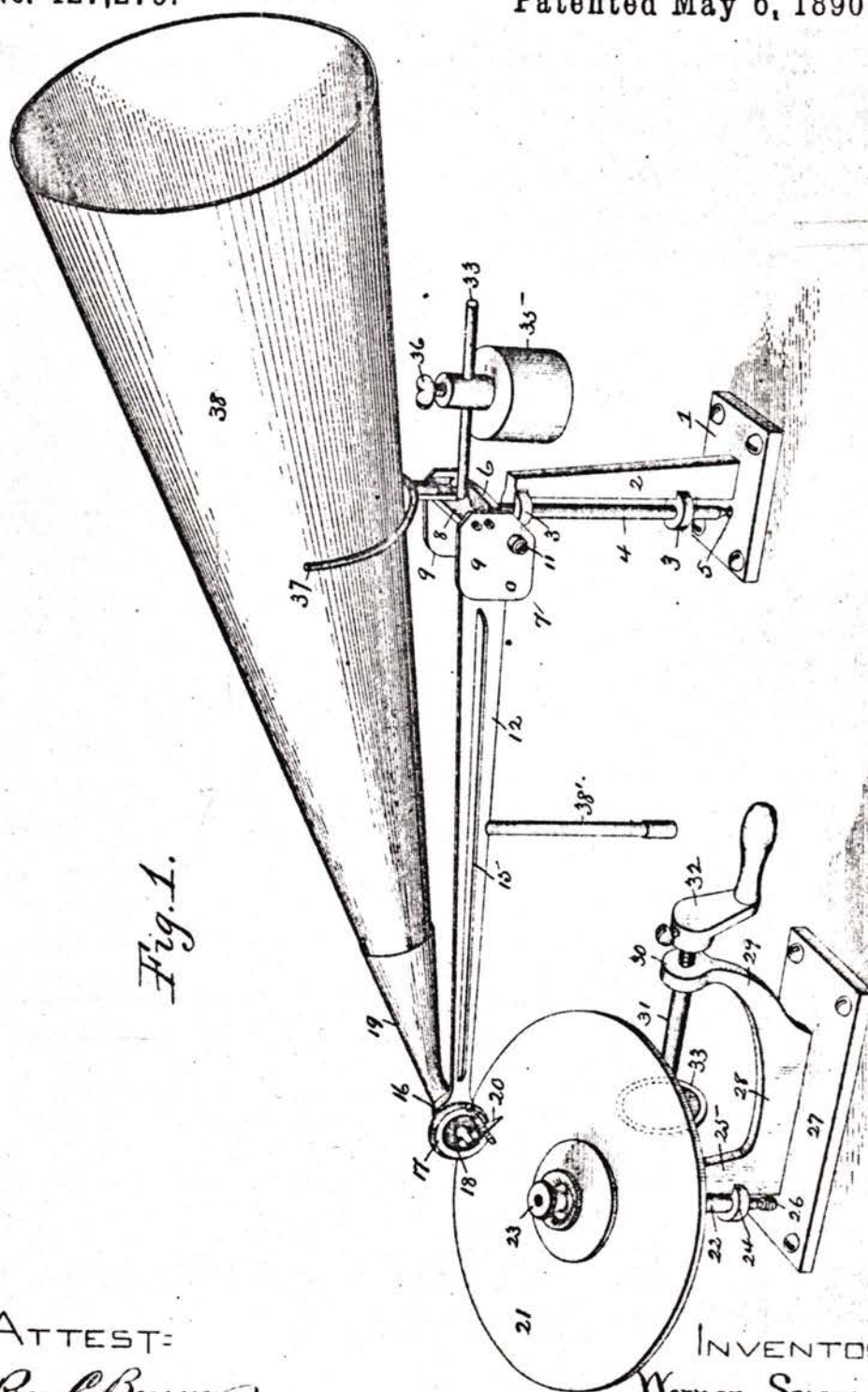


Fig. 1.

ATTEST:

*Roy C. Bowen,*  
*F. T. Chapman*

INVENTOR:

Werner Suess,  
By *Joseph Lyon,*  
his Attorney.



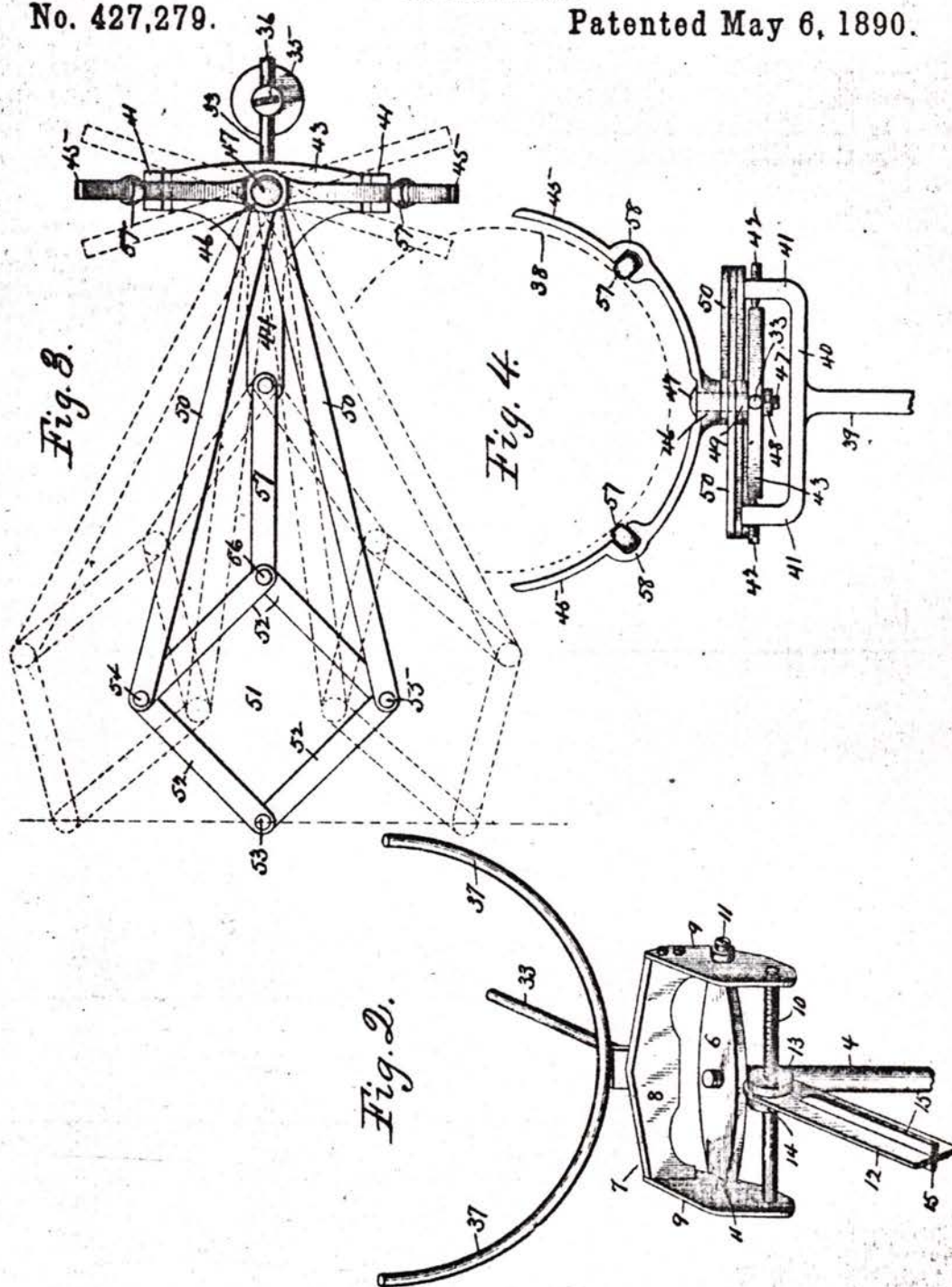
(No Model.)

2 Sheets—Sheet 2.

W. SUESS.  
GRAMOPHONE.

No. 427,279.

Patented May 6, 1890.



Witnesses

*Percy C. Brown.*  
*F. T. Chapman.*

Inventor,

Werner Suess,

By his Attorney

*Joseph Lyons.*



# UNITED STATES PATENT OFFICE.

WERNER SUESS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO  
EMILE BERLINER, OF SAME PLACE.

## GRAMOPHONE.

SPECIFICATION forming part of Letters Patent No. 427,279, dated May 6, 1890.

Application filed August 6, 1889. Serial No. 319,896. (No model.)

*To all whom it may concern:*

Be it known that I, WERNER SUESS, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Gramophones, of which the following is a specification.

My invention has reference to improvements in the reproducing apparatus adapted for use in the method of recording and reproducing sounds set forth in Letters Patents No. 372,786, of November 8, 1887, and No. 382,790, of May 15, 1888, both granted to Emile Berliner. The whole apparatus used for the practice of the said method has been called the "gramophone," and in this class of sound recording and reproducing apparatus the record is ordinarily produced on the face of a rotating disk as a volute band consisting of a sinuous or undulating groove of even depth. In the production of this record a recording-stylus is made to travel over the face of the rotating disk from the outer circumference toward the center in a straight radial path. The reproduction of the recorded sounds is effected by giving to a reproducing-stylus vibratory movement by and in accordance with the sinuosities of the record-groove, and, these vibratory movements being transmitted to a diaphragm, vibrations of the latter give rise to sounds which are copies of the sounds originally uttered against the recording apparatus.

With the view of intensifying the sound emitted by the reproducer, and more especially of directing the same to the listener or listeners, I provide a funnel-shaped tube, on the contracted end of which the reproducing stylus and diaphragm are mounted, while the open flaring end of the tube is directed toward the listener or listeners. This flaring sound-conveyer, thus becoming an integral part of the reproducer, must have all the mass movements of the stylus and diaphragm, and being of considerable weight it must be so supported and balanced that the recording-stylus will bear with light but sufficient pressure upon the record-tablet. The best results are obtained if the reproducing stylus is made to travel in a straight radial

line across the face of the record-tablet, substantially in the manner in which the recording-stylus has traveled in producing the record. The main features of my present invention therefore have reference to the means for supporting and counterbalancing the sound-conveying tube with its attached diaphragm and reproducing-stylus and for making the path of the stylus across the face of the record-disk as nearly as practicable a straight radial line. The stylus engaging with its point the record-groove is controlled by the walls of the latter, and, as will be hereinafter more fully shown, I rely upon this control of the stylus by the walls of the record-groove for the movement of the stylus across the face of the disk, there being no positive feeding mechanism for thus moving the stylus. All this will more fully appear from the following detailed description, in which reference is made to the accompanying drawings, which form a part of this specification, and in which I have shown, in—

Figure 1, a perspective view of one form of reproducer, shown in the supporting frame with a sound-conveying tube, with the diaphragm and stylus in operative relation to the record-disk. Fig. 2 is a perspective view of the pivotal bearing of the frame with parts removed and broken away. Fig. 3 is a plan view of another form of supporting-frame for the reproducer, by which the stylus is caused to travel in a straight line across the record-tablet. Fig. 4 is an end view of the same with the counter-weight removed.

Like numerals of reference indicate like parts all throughout the drawings.

Referring now to Fig. 1, there is shown a base-plate 1, which may be secured by screws or otherwise to any suitable support—such, for instance, as a table. Erected on this base-plate is a standard 2, on one edge of which are laterally-projecting eyes 3, forming guides in which turns a vertical shaft or pivot 4. This shaft is stepped at the lower end in a bearing 5 in the base-plate, and at the upper end has secured to or formed on it a head 6, which, as shown more clearly in Fig. 2, consists of a flat plate, to the center of which the shaft 4 is attached. This head 6 serves



as a support for a frame 7, consisting of an end piece 8, two parallel side pieces 9, secured at one end to the end piece by screws, as shown, or otherwise, and a rod 10, joining the other ends of the side pieces 9. Mounted in the side pieces 9 are pointed screws 11, projecting through nuts therein and entering oppositely-arranged seats (not shown) in the ends of the head 6, and forming a pivotal bearing for the frame 7, around which it may turn in a vertical plane at right angles to the axis of the shaft 4. It will now be understood that the frame 7 may be moved in any direction, the shaft 4 and pivot-screws 11 constituting a universal joint for the same. The rod 10 carries one end of an arm 12, secured rigidly thereon by a jam-nut 13, which clamps the said arm firmly against a flange 14 on the rod, which latter is screw-threaded, as shown, for the reception of the nut 13. The arm 12 is stiffened by longitudinal side ribs 15 and terminates at the free end in a head 16, on one side of which is secured a diaphragm-holder 17, carrying a diaphragm 18, and on the other side of the head there is secured a flaring socket 19, communicating at its reduced end with a chamber (not shown) at the rear of the diaphragm.

Attached to the diaphragm is a stylus 20, mounted for lateral vibration, and, together with the said diaphragm, forming a sound-reproducer. The construction of the stylus and the mounting therefor form no part of the present invention, and are therefore not specifically described herein. The point of the stylus rests normally in the record-groove produced on the face of a disk-tablet 21, which is mounted for rotation upon a disk carried by a vertical shaft 22, similar to the shaft 4, before described. As shown in Fig. 1, the shaft 22 has at its upper end a thumb-nut 23, by means of which the tablet is clamped thereon, and the said shaft is passed through eyes 24 (one only being shown) on a standard 25 and stepped in a bearing 26 in a base-plate 27, on which the standard is erected. The lower end of the standard is extended laterally on the plate 27, as shown at 28, and terminates in an upturned end 29, carrying at its upper end and below the level of the tablet a bearing 30 for a horizontal shaft 31, which latter is provided with a crank 32 at the outer end and a friction-wheel 33 at the inner end, which wheel engages the under side of the tablet-supporting disk, which is not visible in the drawings. It will now be understood that when the shaft 31 is rotated by means of the crank 32 the friction-wheel 33, engaging the tablet-support, will cause the latter to rotate and carry successive portions of the record under the stylus to reproduce the sounds in a manner described in the aforesaid Letters Patent.

The mechanism for supporting and rotating the tablet may be of any suitable construction and entirely different from that shown, such construction being by no means an essential feature of my invention.

Secured to the end piece 8 of the frame 7 is a rod or arm 33', extending in a direction opposite to that of the arm 12, and carries a weight or block 35. This weight may be adjusted upon rod 33' and clamped in any desired position on a thumb-screw 36.

Attached to a short stem erected on the end piece 8 and over the shaft 4 is a semicircular bracket 37, on which rests the funnel-shaped sound-conveyer 38, the smaller end of which enters the socket 19. It will be readily understood that the sound-conveyer supported in the manner described, together with the diaphragm and stylus carried in the mounting attached to the arm 12, may be moved laterally around the axis of the pivot-shaft 4 and vertically around the axis of the frame 7. By reason of these two movements the stylus may be made to approach toward or recede from the axis of the rotating tablet, and in this manner traverse every portion of the surface of the said tablet, or it may be swung aside and entirely removed therefrom.

The operation of an apparatus so constructed is as follows: The tablet 21, containing a sound-record in the form of a convolute, sinuous, or wavy groove produced in the manner set forth in my aforesaid Letters Patents, is mounted on the supporting-disk carried by the shaft or spindle 22. The weight 35 is adjusted to nearly counterbalance the arm 12 and parts carried thereby, so that the stylus rests lightly, but with sufficient pressure, on the tablet with its point in the record-groove. The tablet is now rotated and the sinuous groove thereon vibrates the stylus, which in turn vibrates the diaphragm in accordance therewith, and thus produces sound-waves, which latter are directed toward the listener by the sound-conveyer 38. As the rotation of the tablet is continued the convolutions of the record-groove will cause the stylus to be slowly drawn across the tablet, turning the entire support of the reproducing apparatus on its pivot-bearing, the said stylus moving along a slightly-curved path over the said tablet. When placing a tablet in position, or on removing it therefrom, it is necessary to move the reproducer out of operative relation thereto, and for this purpose the supporting-frame is swung on the horizontal and vertical pivots to some position away from the tablet, when it may be lowered until a leg 38', which depends from the arm 12, rests upon the table on which the apparatus is secured. It will be understood that the counter-weight may be adjusted to cause the stylus to bear with any desired degree of pressure on the tablet.

Referring now more particularly to Figs. 3 and 4, there is shown a standard or post 39, which is fixed to a table or other support and terminates at the upper end in a yoke 40, having two upturned parallel ends 41, each carrying an inwardly-projecting pointed screw 42, extending through a suitable nut formed therein. The pointed ends of these screws enter suitable seats on opposite sides of a



plate 43 and constitute a horizontal pivotal bearing on which the said plate may be rocked. The plate 43 has an arm 44 formed on it and extending centrally from one side at right angles to its axis, and it also has another arm 33', similar to that shown in Figs. 1 and 2, extending in a direction opposite to the arm 44, being on the other side of the axis of the plate. The arm 33' carries a sliding weight 35, similar in construction to that before described, and in a like manner serving as a counter-weight. Above the center of the plate 43 there is a semicircular bracket consisting of two curved branching arms 45, rising from a block 46. Through this block there is a perforation for a pivot-bolt 47, which extends downwardly through the plate 43 and there receives a nut 48, by means of which the bolt is secured to the said plate, and the head of the bolt engages the upper face of the said block 46. This bolt 47 also passes through a washer 49, resting directly on the upper surface of the plate 43, and through eyes formed in the ends of links 50, the said ends being interposed between the lower end of the block 46 and the washer 49. Thus it will be seen that the bolt forms a vertical pivot around which the bracket 45 46 and the links 50 may move, and also secures them to the said plate. The outer ends of the links 50 are pivoted to opposing corners of an articulated frame 51, composed of links 52, of equal length, connected together at the ends by pivot-pins 53, 54, 55, and 56, respectively, the pins 54 and 55 also connecting the links 50 to the frame at the points before mentioned. The pin 56 also pivotally connects one end of a link 57 to the corresponding corner of the frame 51, the other end of the said link being pivoted to the outer end of the arm 44.

The frame 51, together with the links 50 and 57, constitutes a well-known mechanical movement by which a curvilinear movement is converted into a rectilinear movement, provided the various links have the proper relative lengths, which is supposed to be the case in this instance, and therefore no detailed description of the operation thereof is deemed necessary.

In the apparatus shown in Figs. 3 and 4 the arm 12 is replaced by the link movement or system, and in this case the stylus and diaphragm will be mounted on the outer or free end of the said link system—namely, at 53—and the sound-conveyer 38 (indicated by dotted lines in Fig. 4) will rest on friction-rollers 57, mounted in bearings formed in cut-away or recessed portions 58 of the bracket-arms 45. In the operation of this apparatus the counter-weight 35 is adjusted in the manner before described and the entire reproducer mechanism is moved to a position in which the stylus rests on the tablet at the beginning of the record to be produced. Such position is indicated in Fig. 3 by the upper series of

dotted lines, from which it will be seen that the frame 51 is of greater length than breadth. As the record-tablet is rotated the volute record-groove acting on the stylus slowly draws it across the face of the tablet, as before explained, and turns the entire reproducing apparatus on its vertical axis or pivot 47. As the apparatus approaches the position coinciding with the vertical plane of the arm 44 of the plate 43 the link 57, moving through an arc of shorter radius than that of the links 50, tends to force the frame 51 outward, which tendency is resisted by the said links 50, and the consequent action of these two opposing forces is to shorten the length and increase the breadth of the said frame 51 until it assumes the square form shown in full lines, Fig. 3. As the movement of the stylus is continued beyond the central plane of the arm 44 the frame 51 will be again lengthened, as indicated by the lower series of dotted lines. It will be understood that the length of the frame 51 decreases as the latter approaches a central position and increases as it recedes therefrom, and in accordance with this change of shape of the said frame its outer end (and the stylus thereon) will be carried to a constantly-increasing distance from the pivot or axis of the apparatus, and the resultant of this constant longitudinal movement of the outer end of the frame while the apparatus moves in an arc around its pivot is to move the said end in a straight line. When the reproducer-stylus is moved over the record-tablet in the manner stated, its path will coincide with the radius of such tablet, and the point of the said reproducer-stylus will be at all times in the same relation to the record-grooves as was the recorder-stylus in producing such record. In this operation the sound-conveyer must participate in the movement of the stylus toward and from the pivot 47, and it will therefore slide upon the arms 45 of the supporting-bracket, and with a view of reducing the friction the rollers 57 are provided.

Having now fully described my invention, I claim and desire to secure by Letters Patent—

1. In an apparatus for reproducing sounds from a record-tablet, the combination, with a reproducer mechanism consisting of a sound-conveying tube and a diaphragm and stylus mounted at one end of the tube, of a freely-swinging supporting-frame for the said reproducer mechanism and a weight adjustable on the said frame to counterbalance the reproducer mechanism, substantially as described.

2. In an apparatus for reproducing sounds from a record-tablet, the combination, with a reproducer mechanism consisting of a sound-conveyer and a diaphragm and stylus mounted at one end thereof, of a supporting-frame for the said reproducer, loosely pivoted to swing freely both laterally and vertically, and



an adjustable counter-weight on the said frame for determining the pressure of the stylus on the record-tablet, substantially as described.

3. In an apparatus for reproducing sounds from a record-tablet, the combination, with a reproducer mechanism consisting of a sound-conveyer and a diaphragm and stylus at one end of the said conveyer, of a counterweighted pivoted frame for supporting the reproducer mechanism and provided with a system of laterally-movable pivoted links connected at one end to the said reproducer mechanism and at the other to a portion of the supporting-frame fixed against lateral movement, substantially as described.

4. In an apparatus for reproducing sounds from a record-tablet, the combination, with a reproducer mechanism consisting of a sound-conveyer and a diaphragm and stylus at one end of the said conveyer, of a system of links supporting the stylus end of the reproducer and proportioned and arranged, as described,

for moving the stylus in a straight path across the record-surface, substantially as described. 25

5. In an apparatus for reproducing sounds from a record-tablet, the combination, with a reproducer mechanism consisting of a sound-conveyer and a diaphragm and stylus at one end of the said conveyer, of a system of links supporting the stylus end of the reproducer and constructed, as described, for moving the stylus in a straight path across the record-surface, and a pivoted bracket on which the sound-conveyer rests, provided with anti-friction rollers on which the said conveyer travels longitudinally to participate in the movement of the stylus end of the reproducer, substantially as described. 30 35

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 40

WERNER SUESS.

Witnesses:

F. T. CHAPMAN,  
J. B. MACAULEY.



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CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY and United States Gram-  
ophone Company,

Complainants,

VS.

*Leeds & Catlin*

TALKING PHONE COMPANY,

Defendant.

In Equity,

No. 8839, 8797.

On Patent No.

534,543.

To the Honorable the Judges of the Circuit Court  
of the United States for the Second Circuit  
in and for the Southern District of New York:

The petition of the *Leeds & Catlin* Talking Phone Company, de-  
fendant herein, respectively shows:

First. That heretofore in <sup>*July*</sup> September, 1904, the  
complainants filed their bill of complaint against  
the defendant herein that thereafter defendant  
duly appeared on the <sup>*August*</sup> ~~November~~, 1904, rule day.  
Defendant's demurrer to the bill of complaint hav-  
ing been overruled, on December 21, 1905, defend-  
ant filed its answer to the bill of complaint and  
complainants filed their replication on the Feb-  
ruary, 1906, rule day; that thereafter complainants  
moved for a preliminary injunction against defend-  
ant and on May 2, 1906, an order was entered  
herein directing a writ of preliminary injunction to  
issue herein restraining the defendant, as provided  
in said order, until further order of the Court. Af-  
fidavits and exhibits were presented to the Court  
by complainants and defendant upon said motion.

Second. Wherefore, your *Leeds & Catlin* petitioner, Talk-  
ing Phone Company,



Petition.

~~Phona~~ Company, feeling itself aggrieved by the entry of said order on May 2, 1906, hereby appeals therefrom to the Circuit Court of Appeals of the United States in and for the Second Circuit for the reasons specified in the assignment of errors, which is filed herewith, and prays that this appeal may be allowed and that a duly authenticated transcript of said order and of the record and other proceedings thereto relating upon which said order was made, together with all exhibits used upon said motion, may be transmitted forthwith to the United States Circuit Court of Appeals for the Second Circuit for review therein.

Dated May 4, 1906.

*Leeds & Catlin*  
~~TALK-O-PHONE~~ COMPANY,

By Louis Hicks,  
Solicitor and Counsel.

And now to-wit, on this 10th day of May, 1906, it is ordered that the above appeal be allowed, as prayed for.

E. HENRY LACOMBE,  
U. S. Circuit Judge.

Service of a copy of within petition and order on this 12th day of May, 1906, is hereby admitted.

STIMSON & WILLIAMS,

Per H. P.  
Solicitors for Complainants.

Filed May 12th, 1906.



CIRCUIT COURT OF THE UNITED STATES,  
SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, and United States Gram-  
o-Phone Company,  
Complainants,

VS.

*Leeds & Catlin*  
TALK-O-PHONE COMPANY,  
Defendant.

In Equity.  
No. 8899 8797.  
On Patent No.  
534,543.

To the Honorable the Judges of the Circuit Court  
of the United States for the Second Circuit in  
and for the Southern District of New York:

And now comes the above-named defendant,  
*Leeds & Catlin*  
Talk-o-Phone Company, by its solicitor with its  
petition for appeal from the order or decree entered  
in this cause May 2, 1906, and designated in the  
said petition for appeal and makes and files the  
following assignment of errors:

The Circuit Court erred in the following particu-  
lars:

1. In not holding that the patent in suit, No.  
534543, expired with the prior German Patent No.  
53622, of November 20, 1889.
2. In not holding that claim 5 of the patent in  
suit, No. 534543, expired with the prior German  
Patent No. 53622, of November 20, 1889.
3. In not holding that claim 35 of the patent in  
suit, No. 534543, expired with the expiration of the  
prior German Patent, No. 53622, of November 20,  
1889.



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Petition for Appeal.

4. In not holding that the patent in suit, No. 534543, expired with the prior French Patent No. 207090, of July 19, 1890.

5. In not holding that claim 5 of the patent in suit, No. 534543, expired with the prior French Patent No. 207090, of July 19, 1890.

6. In not holding that claim 35 of the patent in suit, No. 534543, expired with the expiration of the prior French Patent No. 207090, of July 19, 1890.

7. In not holding that the patent in suit, No. 534543, including Claims 5 and 35, expired with English Patent No. 15232, of November 8, 1887.

8. In not holding that the patent in suit, No. 534543, including Claims 5 and 35, expired with German Patent No. 45048, of November 8, 1887.

9. In not holding that the patent in suit, No. 534543, including Claims 5 and 35, expired with French Patent No. 186827, of November 8, 1887.

10. In not holding that Berliner was not the inventor of the invention set forth in Claims 5 and 35 of the patent in suit.

11. In not holding that the invention of Claims 5 and 35 of the patent in suit, No. 534543, was anticipated by Werner Suess in Canadian Patent No. 41901, of February 11, 1893.

12. In not holding that Berliner had abandoned the invention claimed in Claims 5 and 35 of the patent in suit, No. 534543, before he applied for a patent therefor.

13. In not holding that Berliner had abandoned the invention claimed in Claims 5 and 35 of the patent in suit, No. 534543, before the patent was issued.



Petition for Appeal

14. In not holding that Claims 5 and 35 of the patent in suit, No. 534543, should be limited to Berliner's improvements in the details of construction of his reproducer.

15. In not holding that defendant's devices do not infringe Claims 5 and 35 of the patent in suit, No. 534543.

16. In not holding that the patent in suit, No. 534543, expired February 11, 1899, with the expiration of the term of six years for which the prior Canadian Patent, No. 41901, of February 11, 1893, was granted.

17. In not holding that Claims 5 and 35 of the patent in suit, No. 534543, were anticipated by English Patent No. 1644, of 1878, to Edison.

18. In not holding that the patent in suit, No. 534543, was not fairly in controversy in the prior suit between these complainants and the American Graphophone Company, and that the adjudication in that suit formed no proper basis for a preliminary injunction.

19. In not holding that at the time of the hearing of the motion for preliminary injunction defendant was entitled to have the cause heard upon the pleadings and the bill dismissed.

20. In not holding that the patent in suit, No. 534543, had expired before the commencement of this suit.

21. In not holding that the patent in suit, No. 534543, had expired before the making of the motion for preliminary injunction and the making of the order entered May 2, 1906, and hereby appealed from.

22. In not denying the motion for preliminary injunction.



Petition for Appeal.

23. In not dismissing the bill of complaint upon the hearing of the motion for preliminary injunction.

24. In not holding that Claims 5 and 35 of the patent in suit, No. 534543, are and always have been invalid by reason of more than two years public prior use in the United States by Berliner before the date of the filing of his application therefor.

25. In not holding that Claims 5 and 35 of the patent in suit No. 534543, are and always have been invalid by reason of more than two years public prior use in the United States by T. Commerford Martin before the date of the filing of the application therefor.

26. In not holding that in view of the state of the prior art Claim 5 of the patent in suit, No. 534543, is void for lack of invention.

27. In not holding that in view of the state of the prior art Claim 35 of the patent in suit, No. 534543, is void for lack of invention.

28. In not holding that in view of the prior art Claim 5 should be limited to a method of reproducing sounds wherein the stylus is vibrated substantially as described in the specification of the patent in suit, No. 534543, and shown in figures 6 and 7 thereof.

29. In not holding that in view of the prior art Claim 35 of the patent in suit, No. 534543, should be limited to a sound reproducing apparatus having a reproducing stylus free to be vibrated substantially as described in the specification and shown in figures 6 and 7 thereof.

30. In not holding that Claim 5 of the patent in suit, No. 534543, is void as being for the function of a machine.



Petition for Appeal.

31. In not holding that Claim of the patent in suit, No. 534543, is void as being for the function of a machine.

32. In not holding that Claim 35 of the patent in suit, No. 534543, is void as being indefinite, meaningless and claiming nothing.

33. In enjoining the manufacturing and selling of an article under Claim 5 of the patent in suit, No. 534543, which is limited to a method.

34. In granting the order for preliminary injunction.

35. In not denying the motion for preliminary injunction because of complainants' failure to prove title to the patent in suit, No. 534543.

LOUIS HICKS,  
Solicitor and Counsel for Defendant.

Service of a copy of within assignment of errors on this 12th day of May, 1906, is hereby admitted.

STIMSON & WILLIAMS,

Per H. P.

Solicitors for Complainants.

Filed May 10th, 1906.



854-333

Citation on Appeal.

**Citation on Appeal.**

The President of the United States to the Victor  
Talking Machine Company and United States  
Gramophone Company, Greeting:

You and each of you are hereby cited and ad-  
monished to be and appear in the United States  
Circuit Court in the City, County and Southern  
District of New York, on the 8th day of June,  
1906, pursuant to an appeal duly obtained by  
order of the Circuit Court of the United States for  
the Southern District of New York, wherein ~~Talk~~  
~~Machine~~ Company is the appellant and you are the  
appellees, and show cause, if any there be, why the  
order or decree in said appeal mentioned should  
not be reversed, modified or corrected, and why  
justice should not be done in that behalf.

Witness, the Honorable E. Henry Lacombe,  
United States Circuit Judge for the Southern Dis-  
trict of New York, this 10th day of May, 1906.

E. HENRY LACOMBE,  
United States Circuit Judge.

Service of a copy of this citation on this 12th  
day of May, 1906, is hereby admitted.

STIMSON & WILLIAMS,  
Solicitors for Complainants.

Filed May 12th, 1906.



Stipulation.

Stipulation.

CIRCUIT COURT OF THE UNITED STATES.

SOUTHERN DISTRICT OF NEW YORK.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

Complainants,

vs.

TALK-O-PHONE COMPANY,

Defendant.

VICTOR TALKING MACHINE COM-  
PANY, *et al.*,

Complainants,

vs.

LEEDS & CATLIN COMPANY,

Defendant.

In Equity,  
No. 8859. On Patent  
No. 534,543.

In Equity,  
No. 8797. On Patent  
No. 534,543.

For the purposes of the appeals from the orders for preliminary injunction entered May 2, 1906, in each of the above entitled suits, it is stipulated as follows:

First. That the drawings of the French Patent No. 186827, of November 8, 1887, to Emile Berliner, and the drawings of German Patent No. 15048, of November 8, 1887, to Emile Berliner are identical with the drawings of English Patent No. 15232, of November 8, 1887, to Emile Berliner, and that the drawings of said English patent may be used on appeal in connection with said French and German patents, and that the drawings of said



French and German patents need not be reproduced as part of the record on appeal in either of the above entitled suits.

Second. That the drawings of Canadian Patent No. 41901, of February 11, 1893, to Werner Suess, assignor to Emile Berliner, are identical with the drawings of United States Patent No. 427279, of May 6, 1890, to Werner Suess, assignor to Emile Berliner, and that the drawings of said United States patent may be used on appeal in connection with said Canadian patent, and that the drawings of said Canadian patent need not be reproduced as part of the record on appeal in either of the above entitled suits.

Third. That the patent in suit No. 534543, of February 19, 1895, from page 1, line 8, beginning with "My invention has reference to" to the signature, "Emile Berliner," on page 7, line 88, is identical with Canadian Patent No. 55079, of February 24, 1897, to Emile Berliner, except that in Claim 35 of the Canadian patent there is omitted the word, "In," which appears at the beginning of Claim 35 of the United States patent and that the drawings of the two said patents are identical and that the specification of said Canadian patents contains no other language except the introductory lines beginning "to all whom it may concern" and ending "Reference is made to the accompanying drawings in which," and except that said Canadian patent concludes, "Washington, D. C., November, 1895. Signed in the presence of," which shall be reproduced as part of the records on appeal; and that the said part of said United States patent, from page 1, line 8 to page 7, line 88 thereof, and the drawings thereof may be used on appeal in connection with said Canadian patent, and that such parts of said Canadian patent and the drawings



Stipulation.

thereof need not be reproduced as part of the record on appeal in either of the above entitled suits.

Fourth. That the record catalogue of the Talk-o-Phone Company forming "Thomae Exhibit No. 8," annexed to complainants' affidavit of R. L. Thomae in the above entitled suit against the Talk-o-Phone Company need not be reproduced as part of the record on appeal in either of the above entitled suits.

Fifth. That the original texts in French of Berliner French Patents Nos. 186827, of November 8, 1887, 190602, of May 15, 1888 and 207090, of July 19, 1890, and the original texts in German of Berliner German Patents Nos. 45048, of November 8, 1887, 47099, of May 16, 1888 and 53622, of November 20, 1889, need not be reproduced as part of the record on appeal in either of the above entitled suits, and that only the translations of said texts need be reproduced on said appeals.

Sixth. That in each of the above entitled suits the usual bond for costs in the sum of Two hundred and fifty dollars (\$250) and a bond for Ten thousand dollars (\$10,000) as security to complainants for the payment of all damages and profits due to infringement of Claims 5 and 35 of the patent in suit during the suspension, pending appeal, of said injunctions have been filed and approved, and that the said bonds need not be reproduced as part of the record on appeal in either of the above entitled suits.

Seventh. That each and all of the original documents have referred to which according to this stipulation need not be reproduced as part of the record on appeal in either of the above entitled suits may be exhibited to the Court on appeal and be referred to and used on appeal in each of the



~~558342~~

Stipulation.

above entitled suits, should the Court on appeal so desire.

Eighth. The purpose of this stipulation is to expedite the making of the record and to save unnecessary expense on appeal in each of the above entitled suits.

Dated New York, May 15, 1906.

HORACE PETTIT,  
Counsel for Complainants above named.

LOUIS HICKS,  
Counsel for Defendants above named.

Filed June 1, 1906.

[9577]



SELCHOW et al. v. CHAFFEE & SELCHOW, MFG. CO. (Circuit Court of Appeals, Second Circuit, October 16, 1905.) Appeal from the Circuit Court of the United States for the Southern District of New York. Motion to Dismiss Appeal. For opinion below, see 132 Fed. 996. Hans von Briesen, for the motion. A. Bell Malcomson, opposed. Before WALLACE, LACOMBE, and COXE, Circuit Judges.

PER CURIAM. The only decree entered in this cause was an interlocutory decree for an injunction and an accounting, dated November 21, 1904. The entry in the clerk's docket March 21, 1905, of the amount taxed as costs was not a final decree and is not appealable. If the complainants abandon the accounting, or unduly delay it, the defendant may move for the entry of a final decree from which an appeal can be taken. The motion to dismiss the present appeal is granted.

---

In re SEMONS et al. (Circuit Court of Appeals, Second Circuit, February 1, 1906.) No. 110. Appeal from the District Court of the United States for the Southern District of New York. Henry Kuntz, for appellants. F. M. Czaki, for appellee. Before LACOMBE, TOWNSEND, and COXE, Circuit Judges.

PER CURIAM. The bankrupt did not appeal from the order dismissing his application for discharge. Such an order we held in *Re Kuffler*, 127 Fed. 125, 61 C. C. A. 259, was in substance an order denying discharge, and as such reviewable by appeal under Bankr. Act July 1, 1898, c. 541, § 25, 30 Stat. 553 [U. S. Comp. St. 1901, p. 3432]. Having elected not to review such order by appeal, he should not be allowed to question its validity as an order denying discharge. Order affirmed.

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THOMAS, Collector of Customs, v. SCHWARZ. (Circuit Court of Appeals, Third Circuit, January 15, 1906.) No. 39. Appeal from the Circuit Court of the United States for the Eastern District of Pennsylvania. Jasper Yates Brinton and J. Whitaker Thompson, for appellant. Before DALLAS and GRAY, Circuit Judges, and BUFFINGTON, District Judge.

GRAY, Circuit Judge. This is an appeal from a decree of the Circuit Court for the Eastern District of Pennsylvania (140 Fed. 302), affirming the decision of the Board of General Appraisers, as to the classification of certain merchandise for customs duty, entered at the port of Philadelphia. The facts are sufficiently stated in the opinion of the learned judge of the court below. As we agree with the conclusions of law arrived at, and the reasons in support thereof, as set forth in that opinion, we adopt the same as our own. The decree of the court below is affirmed.

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UNION STOCK YARDS CO. v. CHICAGO, B. & Q. R. CO. (Circuit Court of Appeals, Eighth Circuit, August 29, 1905.) No. 1,880. In Error to the Circuit Court of the United States for the District of Nebraska. Frank T. Ransom, for plaintiff in error. Greene & Breckenridge, for defendant in error.

PER CURIAM. Affirmed, with costs, on authority of opinion of Supreme Court of the United States, 196 U. S. 217, 25 Sup. Ct. 226, 49 L. Ed. 453.

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AMERICAN GRAPHOPHONE CO. v. TALK-O-PHONE CO. (Circuit Court, S. D. New York, August 14, 1905.) No. 8,943. Ellsha K. Camp, Philip Mauro, and O. A. L. Massie, for complainant. Louis Hicks, for defendant.

HAZEL, District Judge. The demurrer interposed by defendant overruled, with costs. Defendant to answer within 20 days.